

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



ABSTRACTS

Abstracts are arranged in programme order. Speakers with a  Bluesky logo beside their name will also be delivering a Bluesky presentation alongside their talk.

KEYNOTE | 1005

From specimens to solutions: the evolving role and current challenges of natural history collections

Alex Bond (he/him)

Natural History Museum, UK |  @thelabandfield.bsky.social



Natural history collections hold extraordinary potential for science. With hundreds of millions of specimens worldwide, including more than 120 million in the United Kingdom, these collections document life on Earth across millennia and ecosystems. They are already helping researchers track biodiversity loss, examine environmental change, and respond to emerging challenges such as invasive species and disease outbreaks. As tools and questions evolve, the scientific value of collections only increases.

Yet many collections remain underused and under-recognised. Shifts in institutional priorities, limited investment in curatorial expertise, and ageing infrastructure pose real challenges to the long-term viability of many collections. However, this is not a story of decline—it is one of opportunity. Across the globe, innovative research is showing what is possible when collections are supported, accessible, and actively used.

I will share examples of how collections-based research is advancing science in ways that would be impossible without these specimens. I will also offer practical ways researchers, institutions, and collaborators can contribute to strengthening and sustaining collections. There is enormous potential waiting to be unlocked, and by working together with curators and collections professionals, we can ensure these vital resources continue to inform and inspire for generations to come.

Alex is the Principal Curator and Curator in Charge of Birds at the Natural History Museum in Tring, UK, home to 1 million ornithological specimens spanning nearly 300 years. His research focuses on conservation, particularly marine debris, invasive species, and extinction modelling, as well as taxonomy and the history of ornithology. He has been awarded the 2020 Royal Society Athena Prize and the 2022 Marsh Award for Ornithology.

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



OFFERED TALK (ONLINE) | 1035

Century-spanning collections reveal ecological change and phenotypic shifts in Neotropical birds

Andrés M. Cuervo (he/him/his)

National University of Colombia |  @amcuervo.bsky.social

Co-authors: Daniel Cadena, Universidad de Los Andes; Camila Gómez, SELVA; Montague H. C. Neate-Clegg, University of California-Santa Cruz; Natalia Ocampo-Peñuela, University of California-Santa Cruz; Natalia Pérez-Amaya, Universidad Nacional de Colombia; Nelsy-Niño Rodríguez, University of Windsor; Juliana Soto-Patiño, University of Illinois; Camilo Vaquiro-García, Universidad Nacional de Colombia

We resurveyed seven historical sites across Colombia's elevation and ecological gradients to examine ecological and morphological responses of birds to a century of climate and landscape change. Analyzing specimens in museums abroad from historical expeditions (1910s) and our modern collecting efforts (2020-2023), we documented diverse ecological shifts and morphological responses. Birds generally show decreasing body size and wing length, particularly hummingbirds, but increasing bill size and tail length—changes consistent with thermoregulatory adaptations to warming temperatures and locomotory responses to altered habitat quality and landscape connectivity. These patterns suggest both phenotypic plasticity and potential genetic assimilation as initial plastic responses become heritable. Our findings highlight the context-dependency of avian responses across tropical ecosystems and demonstrate how increased access to historical collections for scientists from specimen-source countries can decolonize museum practices while addressing key questions about human-induced evolutionary changes.

Andrés is a Colombian biologist with a Ph.D. from Louisiana State University and masters from University of Puerto Rico who studies tropical bird evolution, ecology and biogeography. He is currently Associate Professor at Universidad Nacional de Colombia and Director of the National Bird Collection. He co-leads the Colombia Resurvey Project.

OFFERED TALK | 1050

Museum collections reveal Dalmatian pelican (*Pelecanus crispus*) palaeoecology in England and offer reintroduction insights

www.bou.org.uk

2

 @bou.org.uk | #BOUasm25

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



Lucia Snyderman (she/her/hers)

University of Reading, UK & Institute of Zoology, UK |  @aukwardlucia.bsky.social

Co-authors: Lucia S. Snyderman, School of Archaeology, Geography and Environmental Science, University of Reading & Institute of Zoology, Zoological Society of London; Samuel T. Turvey, Institute of Zoology, Zoological Society of London; Stuart Black, School of Archaeology, Geography and Environmental Science, University of Reading; Andrew C. Kitchener, National Museums Scotland; Juliette Waterman, School of Archaeology, Geography and Environmental Science, University of Reading; William F. Mills, School of Archaeology, Geography and Environmental Science, University of Reading

Museum archives contain information about past ecosystems that is valuable for establishing biodiversity baselines and informing conservation. The Dalmatian Pelican *Pelecanus crispus* is the world's largest freshwater bird and is classified as Near Threatened by the IUCN, with its current Eurasian distribution representing a contraction of its former Holocene range. Zooarchaeological remains confirm its occurrence in English wetlands, where it became extirpated possibly due to human hunting or wetland drainage. There is strong interest from rewilding advocates in reintroducing this species to England; however, its former ecology in wetland ecosystems remains unknown. We determined stable isotopes of carbon ($\delta^{13}\text{C}$), nitrogen ($\delta^{15}\text{N}$) and sulphur ($\delta^{34}\text{S}$) in bones of pelicans and co-occurring birds from archaeological contexts in the East Anglian Fens and Somerset Levels to reveal the ecological requirements and trophic position of these lost pelican populations. Our research emphasises how collections-based ornithological research provides longer-term perspectives essential for guiding species reintroductions.

Lucia is a PhD researcher at the University of Reading and Institute of Zoology, funded by the NERC Scenario DTP. She utilises museum collections to uncover the extinction stories of species using a combination of conservation palaeobiology tools—stable isotopes, radiocarbon dating, and modelling—and directly inform conservation practice.

BLUESKY | 1105

From roadside to research: how public engagement and veterinary science are transforming avian specimen collection in a changing world

YaHsin Lu (she/her)

National Taiwan University |  @cindy841123.bsky.social

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



Co-authors: Chi-Heng Hsieh, Institute of Ecology and Evolutionary Biology, National Taiwan University

In Taiwan, public attitudes toward roadside animal remains have shifted over the past decade from passive disposal to active scientific participation. Our group aims to encourage public engagement in expanding avian specimen collection, particularly for documenting human-wildlife conflicts. Over five years, we collaborated with citizen scientists and veterinary professionals to collect nearly 500 carcasses across 70+ species, recording over 10 types of urban conflict. These were processed using adapted museum protocols for long-term preservation and education. Veterinary input—such as necropsies and body condition scoring—enhanced data quality and public trust in identifying causes of death while addressing safety concerns. In turn, veterinarians adopted museum-based techniques like diaphonization as alternatives to X-ray imaging. This interdisciplinary model demonstrates how cross-sector collaboration can improve specimen quality, trauma analysis, and outreach. By integrating science communication, public participation, and expert knowledge, we present a scalable, ethical framework for advancing conservation research in a changing world.

YaHsin is an enthusiastic and energetic individual who has always been passionate about nature. She believes it is a privilege and honor to work with museum collections. It is her long-term goal to become a museum staff, and work with all the amazing specimens in the museum to aid in research, conservation and education for many years to come.

KEYNOTE (ONLINE) | 1130

Feathers and eggs: leveraging ornithological collections to explore the evolution of colour, pattern and structure in the avian world

Mary Caswell Stoddard (she/hers)

Princeton University, USA



Ornithological collections offer biologists an especially compelling route to studying the diverse phenotypes of birds. My group's research on the evolution of plumage and eggs has taken us to more than ten natural history museums in the United States and United Kingdom. By integrating state-of-the-art imaging and computational tools with analyses of museum specimens, we aim to understand the evolutionary and mechanistic processes that contribute to avian diversity. Recently, we developed a pipeline for capturing and analysing hyperspectral images of museum specimens, a technique that combines the high spectral resolution of spectrophotometry with the high spatial resolution of photography. Using an ultraviolet-sensitive hyperspectral camera, we uncovered new details about the plumage colours of a rare hybrid Bird-of-Paradise. In a separate study, we applied new tools for

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



quantifying complex patterns — like spots, stripes, and bars — to the study of plumage evolution in *Melanerpes* woodpeckers. Our research on eggs has also made ample use of ornithological collections, beginning with work on egg mimicry by the Common Cuckoo (*Cuculus canorus*) and extending to projects on the evolution of egg shape across 1400 species and the diversification of egg colour, shape and surface texture in Paleognaths — the most ancient lineage of modern birds. Using these examples as case studies, I will highlight the great potential of ornithological collections — catalysed by new technology for quantifying the phenotype — to yield novel insights into avian evolution and behaviour.

Cassie is a professor in the Department of Ecology and Evolutionary Biology at Princeton University. She received her undergraduate degree from Yale University. On a Marshall Scholarship, she completed her Ph.D. at the University of Cambridge before joining the Harvard Society of Fellows as a Junior Fellow. At Princeton, she curates the Princeton Bird Collection and runs the Princeton Better for Birds Project. She is a 2023 Schmidt Sciences Polymath Fellow.

OFFERED TALK | 1200

The global palette: the role of colour in the wildlife trade

Shriya Uday

University of Sheffield, UK | [@shriyaaaaa.bsky.social](#)

The natural world faces a crisis in the form of unsustainable harvesting to supply the global wildlife trade. Using novel colour data collected from over 40K digitized museum specimens and 23-years of international trade data for over 8000 bird species, this project aims to understand the role colour plays in the wildlife trade. We assess how colour abundance, uniqueness, and diversity affects the popularity of a species in trade. We find that more colourful and colour unique birds are more likely to be traded and that specific plumage colours show unique relationships with the probability of a species being in trade. Spatial analysis facilitates tracking the flow of avian colour between countries and reveals cultural aesthetic biases towards colour. By developing understanding of the role aesthetic attractiveness plays in trade, this research will lead to more informed protections as well as help identifying current biases in legislation and data.

Shriya is a PhD student at the University of Sheffield, working within the Cooney Lab. They're investigating the role colour plays in the wildlife trade with a focus on birds and spiders. Utilizing science communication, through podcasts and zines, alongside their research, they aim to answer questions about our relationship with nature.

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



OFFERED TALK | 1215

Neuroscience at the museum

Andrew Iwaniuk (he/him)

University of Lethbridge, Canada |  @evoneuro.bsky.social

Co-authors: Sara Citron, University of Lethbridge

The sensory abilities of birds, like other vertebrates, are dependent on both the physiology and anatomy of the brain and sensory organs. Although physiological studies pose significant challenges, brain and sensory organ anatomy can provide accurate estimates of the acuity and sensitivity of visual, touch, olfactory, and auditory senses. Museum specimens can therefore play important roles in understanding the sensory abilities of birds, including extinct species. Using CT scanning, a suite of neuroanatomical measurements can be made to estimate visual, olfactory, touch, and hearing from skeletal specimens. Fluid specimens also have potential, but there are challenges to overcome with commonly used preservation methods. If changes to specimen handling and preservation can be implemented, our understanding of avian sensory abilities will be greatly improved with implications that extend from macroevolution to applied ornithology.

Andrew is an ornithologist and neurobiologist interested in how and why the anatomy of bird brains varies within and across species. He integrates neuroscience, evolutionary biology, and animal behaviour methods in the lab and field to study neuroanatomical diversity of birds and curate the world's largest bird brain collection.

KEYNOTE | 1230

Ducking & diving: the role of adaptation in waterfowl macroevolution

JC Buckner

University of Texas at Arlington, USA



In evolutionary theory, there are two major mechanisms of diversification: 1) differential adaptation, and 2) random genetic drift. These mechanisms are not mutually exclusive and teasing apart their respective contributions to lineage diversification presents a challenge. However, when independent lineages are subject to the same selection pressures, they may converge on similar adaptive

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



phenotypes. Lineages displaying these convergent phenotypes provide natural replicates for testing the action of (a)biotic selective drivers in shaping adaptation, and in turn diversification. Thus, our lab leverages convergent lineages to advance insights into major evolutionary questions related to adaptive diversification at macroevolutionary scales: (1) How does natural selection shape patterns of speciation and extinction? (2) How do organismal traits change, and co-vary, in response to selection? (3) What is the genetic architecture underpinning adaptive phenotypes? (4) What environmental and ecological factors drive adaptation? The interaction between environment, ecology, and selection drives adaptive diversification, so study systems must be well-characterized in their biogeography, ecology, and functional traits to address these questions. The order Anseriformes (waterfowl – ducks, geese, swans, and screamers) is one such well-characterized group displaying convergent morphological adaptations apparently related to diet. Therefore, to better understand the processes driving diversification — especially adaptation — exploratory and hypothesis-driven research in the IDER lab integrates molecular systematics, comparative genomics, geometric morphometrics, phylogenetic comparative methods, and niche modelling to investigate the (paleo)ecology and evolution of waterfowl as our main model system.

JC is an evolutionary zoologist and assistant professor in the Department of Biology at the University of Texas at Arlington and a research associate in the Division of Birds at the Smithsonian National Museum of Natural History. She serves as the principal investigator of the IDER lab focused on vertebrate macroevolution, biodiversity dynamics, adaptive genetics, and trait evolution. She is also VP of Communications for the Black in Natural History Museums non-profit.

BLUESKY | 1315

Total evidence phylogeny of ducks, geese and swans (family Anatidae): implications for macroevolution and biogeography

Glen Hancocks (he/him)

University of Salford, UK |  @gleneth93.bsky.social

Co-authors: Robin Beck, University of Salford

The neornithine bird family Anatidae comprises the ducks, geese and swans, and is one of the largest and most studied families of modern birds. However, the phylogeny of this family remains highly contentious. In this study, a novel total evidence dataset and associated phylogenetic analyses are presented, based on 209 morphological characters of the external soft tissue, cranium, post-cranium and internal soft tissue, as well as 13.4 kb of mitochondrial sequence data for 75 anatid taxa (72 extant, 3 fossil) and 3 non-anatid outgroup taxa. The resulting phylogeny supports the placement of

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



enigmatic taxa in existing subfamilies. Undated and dated total evidence analyses were carried out, using a Bayesian approach, with the latter resulting in divergence time estimates that indicate that crown-clade Anatidae originated in the Early Miocene about 19 Ma. The undated and dated total evidence topologies were also used to reconstruct the evolution of selected macroevolutionary traits.

Glen is a BSc and MSc graduate and current PhD student of the University of Salford. His interests include the systematics and conservation of avian life. He is currently researching the acoustic impacts of drones on the behaviour of birds.

BLUESKY | 1330

Population structure and inter-species admixture within the 'ō'ū, a likely extinct Hawaiian honeycreeper

Natalia Przelomska (she/her)

Smithsonian Institution, USA |  @natalia-asp.bsky.social

Co-authors: Michael Campana, Smithsonian Institution; Helen James, Smithsonian Institution; Logan Kistler, Smithsonian Institution; Molly Hagemann; Bernice Pauahi Bishop Museum; Jim J. Groombridge, Durrell Institute for Conservation and Ecology; Robert Fleischer, Smithsonian Institution

The Hawaiian honeycreepers simultaneously represent one of the most spectacular avian adaptive radiations and are one of the most endangered avian groups. This clade's few geographically widespread species can serve as a model to understand population-level processes shaping differentiation and characterising decline. This includes the likely extinct 'ō'ū (*Psittirostra psittacea*), a parrot-like beaked honeycreeper with a frugivorous feeding ecology. We compiled morphological and hybridization-captured ancient DNA datasets for the 'ō'ū from museum specimens from across the Hawaiian archipelago. We find genomic and morphological differentiation that is consistent with biogeography, but also an unexpected differentiation pattern on Lāna'i island. Thus, we investigated whether the unexpected divergence could be attributed to inter-species admixture between the 'ō'ū and closely related, geographically overlapping honeycreepers.

Natalia is a multidisciplinary researcher with a PhD in Archaeological Science. She applies population genomics to understand human interactions with the environment. This includes studying declining populations of island birds. Alongside conservation and extinction genomics, another principal research interest she has is the evolution of edible and medicinal plants.

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



BLUESKY | 1345

Morphological evolution in island birds is associated with more terrestrial lifestyles and a lower number of raptors and intra-family competitors

Ana V. Leitão (she/her)

CIBIO-BIOPOLIS, Portugal |  @islandbirdproject.bsky.social

Co-authors: Raquel Ponti, University of Porto & CIBIO, Portugal; Claire Doutrelant, University of Montpellier, France; Rita Covas, University of Porto & CIBIO, Portugal & FitzPatrick Institute of African Ornithology, South Africa

Island biotas present unique ecological conditions - such as isolation, limited area, and simplified communities - that can drive repeated evolutionary patterns. While shifts in body size have been well studied, changes in body shape, aside from the evolution of flightlessness in birds, remain underexplored. Here, we examine the effect of insularity on locomotion-related morphology using museum specimens from 772 pairs of endemic island birds and their closest mainland relatives. We tested potential drivers of variation in wing shape and length, and tarsus length. Island species exhibited more terrestrial traits, with rounder wings and longer tarsi, although wing length remained unchanged. Reduced numbers of raptors and intra-family competitors on islands were associated with shorter tarsi, especially in passerines. Wing shape was also influenced by the loss of migratory behaviour. Our findings reveal a consistent pattern of morphological evolution in island birds toward terrestriality, likely shaped by reduced predation and competition in insular environments.

Ana is a Postdoctoral Research Fellow at CIBIO-BIOPOLIS. Her research focuses on animal behaviour and evolutionary ecology, studying trait evolution in females and males, behavioural and morphological changes in islands, and animal cognition and behavioural adaptability. She uses birds as models through comparative analyses, field studies, and laboratory experiments.

KEYNOTE (ONLINE) | 1400

Using habitat occupancy modelling and genomics to understand a century of change to the birds of Mexico

John McCormack

Occidental College, USA



#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



Understanding how species respond to the Anthropocene requires tools that assess changes in distribution, abundance, and DNA across time. Leveraging analytical tools for assessing distributional change and historical population genomics, the Mexican Bird Resurvey Project re-examined country-wide patterns of avian change over the past century by integrating historical museum records, modern resurveys, community-science observations, and genomic data. We fit occupancy models for all resident Mexican bird species while controlling for detection, environmental covariates, and sampling effort. Declines are heterogeneous in space and among species, with the steepest losses concentrated in the biodiverse southern tropical forests, and among taxa that rely on undisturbed forests, especially insectivores. Many species also show upslope movements, with declines in the lowlands and steady or increasing occupancy in higher elevations. We also sequenced populations of five highland bird species resampled from historical and contemporary localities. Despite significant shifts in allele frequencies consistent with drift, effective connectivity among populations and genome-wide diversity remain similar through time, suggesting limited erosion of genetic variation to date. Together, these results reveal that Anthropocene impacts in Mexico have not been uniform: specific habitats and species bear a disproportionate burden, while many species and communities exhibit marked resilience. The coexistence of decline and persistence implies that persistence is plausible if we protect habitat, maintain landscape connectivity, and mitigate climate and land-use pressures via targeted policy.

John is Director and Curator of the Moore Laboratory of Zoology at Occidental College, home to the world's largest collection of Mexican bird specimens. He got his undergraduate degree from University of Arizona and his PhD from UCLA. His research focuses on bird species responses to historical landscape changes and other human influences with the Mexican Bird Resurvey Project and the Free-flying Los Angeles Parrot Project. He is a recently inaugurated fellow of the American Association for the Advancement of Science.

OFFERED TALK | 1430

Temporal dynamics of avian haemosporidians in Nearctic-Neotropical migratory birds

Heather Skeen

Princeton University & Field Museum of Natural History, USA

Co-authors: Shannon Hackett, Field Museum of Natural History; David Willard, Field Museum of Natural History; John Bates, Field Museum of Natural History; John Novembre, University of Chicago; Greg Dwyer, University of Chicago

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



The ecological dynamics of host-pathogen systems often change over time, making long-term datasets crucial for understanding temporal trends in natural populations. Using salvaged bird specimens from The Field Museum (Chicago, IL, USA), we document avian malarial blood pathogens in 4,306 migratory thrushes collected during spring and fall migration from 1996-2019. Applying a novel phenomenological model, we evaluate seasonal and multi-year variation in pathogen prevalence. We identify distinct seasonality, with higher prevalence in the fall compared to the spring. We also identify periodical, multi-year spikes in prevalence spanning three or more years depending on the specific host-pathogen pairing. Finally, we generated a migratory bird epizootic model to identify factors contributing to the observed variation in prevalence. Our epizootic model suggests that factors relating to host population size influence the periodicity of avian malarial pathogens and are indicative of pathogen-driven population dynamics of the host birds.

Heather is an EEB Postdoctoral Research Fellow at Princeton University and a Scientific Affiliate at the Field Museum of Natural History, having previously completed a PhD at the University of Chicago and a Masters at Loyola University, Chicago.

OFFERED TALK | 1445

Using museum specimens to uncover contemporary evolution in urban tolerant birds

Allen Chochinov (he/him)

Queen's University, Canada

Co-authors: Frances Bonier, Sarah Chapman

The unique challenges species face living in cities may be driving the selection of urban tolerant traits. Our work focuses on determining the extent of contemporary evolution by comparing the neuroanatomy of urban tolerant and avoidant birds over the past 200 years. Museum collections provide an invaluable source of bird skulls from this period, which we can use to build models of the brain known as digital endocasts. Endocasts are generated using computed tomography (CT) scans of the skull of a vertebrate and allow us to examine the neuroanatomy of individuals whose brain has long since decomposed. Preliminary results, using specimens from the Royal Ontario Museum, indicate the size of the brain in urban tolerant species has changed between modern and historical specimens, while urban avoidant species have seen little to no change. We are currently working to include specimens from museums in the United Kingdom, France, and Denmark.

Allen is a PhD Student in Frances Bonier's Lab at Queen's University in Kingston, Canada.

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



OFFERED TALK | 1500

Tracking bill morphology in endangered island-endemic crows using museum and field images

Zhifan Xu (she/her)

University of St Andrews, UK

Avian museum specimens represent baselines for tracking phenotypic changes in response to environmental pressures. This study used geometric morphometric analysis of lateral bill profiles to compare bill shapes between specimens and live individuals for the critically endangered Mariana Crow (*Corvus kubaryi*) and the Extinct-in-the-Wild Hawaiian Crow (*C. hawaiiensis*). The extant population of the Mariana Crow showed a significant reduction in maxillary overhang, potentially correlated with the invasion of the Giant African Snail (*Achatina fulica*) and the emergence of a novel predation behaviour. The bill shape of the Hawaiian Crow showed no significant difference relative to historical populations prior to the population bottleneck. Specimen shrinkage was addressed to ensure robust comparisons. This study also demonstrates how standardised imaging during the handling of live birds (e.g., for ringing or husbandry) provides a reliable, low-cost, and efficient method for documenting bill morphology when combined with geometric morphometrics analyses.

Zhifan is a first-year PhD student studying bill morphology diversification in *Corvus*. Her interests include corvid evolution and behaviour, and museum-based research. Before her PhD, she worked in the mammal collection at Cambridge Museum of Zoology and volunteered in entomology and avian collections at Oxford Museum of Natural History.

OFFERED TALK | 1515

Whole-genome resequencing reveals the origin of a rapidly emerging 'reverse' songbird migration

Joe Wynn (he/him)

University of Liverpool, UK |  @joewynnbirds.bsky.social

Understanding why animal migration is changing is key to anticipating how animals might respond to rapid environmental change. Tracing the origins of new migratory behaviour is challenging, though recently-emerging migratory routes might be tracked back to their geographic origins via the

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



comparison of genetic samples from new migratory routes to georeferenced samples from museum collections. Perhaps one of the most remarkable changes in migratory behaviour is that of the Yellow-browed Warbler (*Phylloscopus inornatus*). Breeding across Siberia and typically wintering in southern Asia, increasing numbers of Yellow-browed Warblers now winter in northern Europe. Using whole-genome resequencing, we trace the European Yellow-browed Warbler to a single geographic origin in western Siberia. We propose that the observed change in trajectory is, remarkably, fairly consistent with a 180-degree migratory route reversal; discuss the mechanisms that might underpin divergent changes in migratory behaviour; and highlight the utility of this method in tracking future migratory flux.

Joe did his D.Phil. at Oxford finishing in 2021, at which point he post-doc'd at the Institute of Avian Research 'Vogelwarte Helgoland' in northern Germany for three years. He has recently started as an 1851/tenure-track fellow at the University of Liverpool, using genomics and telemetry to track changes in bird migration.

BLUESKY | 1530

The fall of a florican: what the history of Bengal Florican says about its future

Nisha Bhakat (she/they)

Nature Conservation Foundation, India |  @nickel-salt.bsky.social

How well do conservation strategies for critically endangered birds take into account the species' requirements? With the nominate race of Bengal Florican *Houbaropsis bengalensis bengalensis* in focus, this study examines widely accepted notions of the bird's behaviour, breeding ecology, and habitat requirements. Including and beyond peer-reviewed articles, we study historical and archival literature, museum accessions, to build a more nuanced profile of the species. The resultant picture is of a bird that has seen disproportionate research focus on specific sex and life stages which has been extrapolated for the entire species. Historical evidence disagrees with it on several aspects especially the behaviour and habitat of female Bengal Floricans, and even the methods behind current population estimates. We use this knowledge to examine current and future conservation strategies for *Houbaropsis bengalensis bengalensis* and make a case for inclusion of collections based and archival research for strategizing endangered species conservation.

Nisha is interested in the past and present of wildlife beyond protected areas, particularly birds. She holds a Master's degree in Wildlife Biology from the National Centre for Biological Sciences, India and is currently creating a digital archive of publications of the Bengal Natural History Society (1926-1976).

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



BLUESKY | 1545

Mapping and modelling the historical ranges of the birds of Madagascar

Peter Learned (he/him)

Natural History Museum, London |  @peteallen01@bsky.social

Co-authors: Ken Norris, Natural History Museum, London; Arianna Salili-James, Natural History Museum, London; Malcolm Penn, Natural History Museum, London

Between 1929 and 1931, the American Museum of Natural History conducted a zoological expedition to Madagascar, led by Richard Archbold and Austin L. Rand. This pioneering effort yielded thousands of specimens (~7000), including many of Madagascar's endemic bird species. Nearly a century later, we are working to extract and map the geospatial data embedded in this historic collection using AI tools. This project introduces a replicable workflow for digitizing historical specimen labels, extracting locality data, and creating interactive range maps of Madagascar's endemic birds. This work not only recovers information from a time before GPS and digital recording, but also helps bring new value to archival data that has remained hidden in physical collections. Bridging the gap between historical expeditions by utilizing modern computational tools offers a powerful model for how we can efficiently take information collected in the past and use it to better conserve biodiversity today.

Peter is a biodiversity researcher specializing in avifaunal conservation, species distributions, and geospatial analysis. He is currently based at the Natural History Museum and pursuing an MSc at UCL, with a focus on using historical records to inform future conservation strategies across changing global ecosystems.

KEYNOTE | 1600

A Zambian ornithological collection as a window into brood parasite-host coevolution

Claire Spottiswoode

University of Cape Town, South Africa



Brood-parasitic birds are renowned for their beautiful adaptations for trickery and exploitation, arising from coevolution with the hosts that raise their young. Museums can give us a unique window into this process, since rapid coevolution between hosts and parasites can be reflected in long-term

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



collections. For four decades from the late 1960s, Major John Colebrook-Robjent, a farmer and oologist, together with field assistants – particularly Lazaro Hamusikili – documented breeding birds and collected their eggs in southern Zambia’s Choma region. This meticulously recorded collection now resides in the Livingstone Museum, Zambia, under the curatorship of Maggie Mwale (also speaking at the conference). My colleagues and I have spent the past two decades studying this collection and, inspired by it, carrying out fieldwork on breeding birds in Choma. In this talk, I will share some of our findings on host-parasite coevolution that the collection has enabled, involving Cuckoo Finches, Greater Honeyguides, African and Diederik Cuckoos, and their hosts. I will focus especially on how selection on egg mimicry drives coevolutionary arms races between hosts evolving new egg signatures and parasites new egg forgeries; and how, in turn, coevolution has shaped ancient genetic specialisation in parasites, to maintain host-specific mimicry that foils host defences.

Claire is a South African evolutionary ecologist working on birds in Africa. She has been hooked on natural history since childhood, and is especially fascinated by species interactions. Her two main areas of research are coevolution between brood-parasitic birds and their hosts, and mutualism between honeyguides and the human honey-hunters with whom they cooperate to access to bees’ nests. Both projects involve close cooperation with communities in Zambia and Mozambique respectively.

OFFERED TALK (ONLINE) | 1630

Have birds' eggs become paler as the climate warms?

Maggie Mwale

Livingstone Museum, Zambia

Avian eggs must develop within strict thermal limits, since lower temperatures slow development and excessive heat kills embryos. Egg phenotype influences the amount of heat that eggs absorb, with paler eggs heating more slowly than darker ones. This inspires the hypothesis that global warming may contribute to selection for paler eggs over time, as temperatures rise. We studied egg appearance of ground-nesting birds (nightjars, plovers and coursers) over 53 years in Zambia, where these species experience very high temperatures at ground level. First, we quantified ambient temperatures and nest operative temperatures, and found that both have increased since 1970 and especially since 2000. Second, we quantified egg appearance from a historical egg collection (1968–2004) and from recent fieldwork (2011–2023) at the same location. We found that while eggs did not change luminance during the historical period, egg luminance has increased over the last 12 years, when climate change has also been most severe. To our knowledge, this is the first evidence of changing egg appearance associated with climate change.

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



Maggie is a Curator of Ornithology at the Livingstone Museum, responsible for over 12,000 bird skins and over 14,000 egg clutches. Maggie's current study interests focus on bird egg phenotypic evolution as an adaptation in response to climate warming, and is also interested in studying birds' eggs as camouflage and as signals of identity in a warming world.

OFFERED TALK | 1645

Utilising artificial intelligence for the automatic extraction of valuable ecological data from avian record cards

Arianna Salili-James (she/they)

Natural History Museum, UK

Co-authors: Douglas Russell, Natural History Museum, London; Ken Norris, Natural History Museum, London; Ben Scott, Natural History Museum, London

For centuries we have been collecting and researching birds from across the globe, analysing behaviours, recording ecological and phenological traits, and in doing so, developing highly valuable datasets. However, there lies an abundance of data that is not yet easily accessible, hidden within historical collections including expedition diaries, ringing cards, museum registers, and collection index cards. To tackle this, we created a team of curators, bird researchers, mathematicians, and data scientists, to explore the use of Artificial Intelligence in automating the extraction of data from structured records within Avian collections. Starting with a dataset of hand-written and printed index cards from an egg collection, we created a pipeline to automatically extract information from images of egg index cards, and performed evaluations, with accuracies from 98 - 100%. In this talk, we discuss our pipeline, and its future role and impact on unlocking Avian collections.

Arianna is a machine learning researcher and a mathematician by-trade. Her background and interests lie within the real-world applications of machine learning and mathematics within ecological, natural history, and museum datasets. In particular, Arianna's PhD research focused on the applications of machine learning and mathematical shape analysis for bird conservation.

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



KEYNOTE | 1700

Using natural history collections to build community

Sushma Reddy (she/her)

University of Minnesota, USA |  @sushred.bsky.social



Natural history collections are key global resources holding the primary records of species information across time and space. Currently there is a resurgence of biodiversity studies utilizing collections along with innovative tools to conduct analyses of macroevolutionary patterns, ecological changes, and anthropogenic impacts. Nevertheless, these institutions have been under scrutiny for their colonial legacies and problematic practices of resource sharing. Additionally, museums are often faced with limited funding to support their collections. Using examples, I highlight the critical need for museums to promote inclusion and expand awareness by broadening the community of users and contributors. Fostering international collaborations is key to expanding access and inclusion. Most biodiversity knowledge of the Global South is held in northern museums and access to specimens is often limited. Being open to new collaborations that may result in novel research directions can serve to expand capacity and support scholars from regions with few museums. Additionally, creating public programs to build awareness of the value of specimens is key to expanding interest in museum collections. Since most research collections are outside of public view, many visitors are unaware of how and why specimens are used. One example for building awareness is to solicit the public to aid in collecting specimens such as salvaged, freshly dead animals. Empowering citizen scientists serves the dual purpose of expanding collections while also generating community-driven ways to engage the public with science. With intentional efforts, museums can secure their future value to society and drive multidisciplinary connections.

Sushma is the Breckenridge Chair of Ornithology at the Bell Museum of Natural History and Associate Professor in Fisheries, Wildlife, and Conservation Biology at the University of Minnesota. Her research investigates biological diversity by using genetic, phenotypic, and geographic data to study the evolutionary history of birds.

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



DELEGATES

| | |
|------------------------|--|
| Peter Adamík | Vlastivědné muzeum v Olomouci, Czechia |
| Mark Adams | Natural History Museum, UK |
| Ross Ahmed | Tyne and Wear, UK BOU Records Committee |
| Erdanya Anderson | |
| Sarah Anthony | Natural England, UK |
| Joshua Arbon | TFF |
| Polydora Baker | Historic England, UK |
| Nisha Bhakat | Nature Conservation Foundation, India |
| Alex Bond | Natural History Museum, UK BOUasm25 Scientific Programme Committee |
| William Bonnaffé | Oxford University, UK |
| Cordula Bracker | Leibnizinstitut zur Analyse des Biodiversitätswandels, Germany |
| Serina Brady | Carnegie Museum of Natural History, USA |
| Michael Brooke | Cambridge University, UK |
| Alexandra Brumwell | University of Kent, UK |
| Graeme Buchanan | RSPB Centre for Conservation Science, UK BOU President |
| JC Buckner | University of Texas at Arlington, USA |
| Sarah Burnhouse | Leeds Discovery Centre, UK |
| Paige Byerly | Senckenberg Gesellschaft für Naturforschung, Germany |
| Robert Cheke | |
| Allen Chochinov | Queen's University, Canada |
| Brian Condori | Sheffield University, UK |
| Chris Cooney | University of Sheffield, UK |
| Joanne Cooper | Natural History Museum, UK |
| Natalie Cooper | Natural History Museum, UK |
| Joshua Coupar-Evans | BOU Conference Support Officer |
| Andrés Cuervo | National University of Colombia, Colombia |
| Iona Cunningham-Eurich | |
| Jessica Dahlke | |
| Kane Dibb | |
| Elizabeth Downey | Natural History Museum, UK |
| Louis Driver | |
| Shane Dubay | University of Texas at Arlington, USA BOUasm25 Scientific Programme Committee |
| Megan Eastick | |

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



| | |
|---------------------------|--|
| Denis Elphick | |
| Rosie Filipiak | Scottish Ornithologists' Club, UK |
| Aldina Franco | University of East Anglia, UK |
| Marie-Sophie Garcia-Heras | Southern Illinois University, USA |
| Filippo Gregorio | |
| Glen Hancocks | University of Salford, UK |
| Sophie Harris | Newcastle University, UK |
| Catherine Horswill | University College London, UK & Institute of Zoology, UK BOU Council member |
| Katy Howlett | |
| Jocelyn Hudon | Royal Alberta Museum, Canada |
| Thalissa Inch | |
| Andrew Iwaniuk | University of Lethbridge, Canada |
| Ashley Jackson | |
| Ava Jenkins | Institute of Zoology, UK |
| Evelyn Jensen | Newcastle University, UK |
| Edward King | |
| Kiara L'Herpinere | Museum of Nature Hamburg Leibniz Institute, Germany |
| Veronika Laine | Finnish Museum of Natural History, Finland |
| Ana Leitão | BIOPOLIS - CIBIO, Portugal |
| David López-Idiáquez | University of Oxford, UK |
| John McCormack | Occidental College, USA |
| Laura McCoy | Manx National Heritage, Isle of Man |
| Jazmine Miles Long | |
| Catriona Morrison | Biomathematics and Statistics Scotland (BioSS), UK Chair, BOU Meetings Committee BOUasm25 Scientific Programme Committee |
| Sean Murphy | |
| Emma Murphy | National Museum of Ireland, Ireland |
| Maggie Mwale | Livingstone Museum, Zambia |
| Tim Newton | |
| Michaël Nicolăi | University of Ghent, Belgium |
| Ken Norris | Natural History Museum, UK Chair, BOUasm25 Scientific Programme Committee |
| Nina O'Hanlon | British Trust for Ornithology, UK |
| Ron Pasieczna | |
| Arianna Passarotto | University of Glasgow, UK |
| Nia Potapova | British Trust for Ornithology, UK |
| Cristian Poveda | University of Exeter, UK |

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



| | |
|---------------------------|--|
| Stephen Pringle | |
| Robert Prys-Jones | Natural History Museum, UK |
| Sushma Reddy | University of Minnesota, USA |
| Allan Reese | |
| Camila Ribas | Instituto Nacional de Pesquisas da Amazônia, Brazil |
| Tim Ross | TEP - The Environment Partnership, UK |
| Douglas Russell | Natural History Museum, UK |
| Arianna Salili-James | Natural History Museum, UK |
| Philip Scarr | |
| Danielle Schreve | University of Bristol, UK |
| Deepa Senapathi | University of Reading, UK |
| Catherine Sheard | |
| Heather Skeen | Princeton University & Field Museum of Natural History, USA |
| Anna Smith | |
| Jack Smith | University of Sheffield, UK |
| Lucia Snyderman | University of Reading, UK & Institute of Zoology, UK |
| Jørgen Søraker | |
| David Soto Arrojo | |
| Claire Spottiswoode | University of Cape Town, South Africa |
| River Stewart | University of Portsmouth, UK BOU Social Media Support Officer |
| Cassie Stoddard | Princeton University, USA |
| David Tan | Deutsches Zentrum für integrative Biodiversitätsforschung, Germany |
| Hannah Teague | Natural History Museum, UK BOUasm25 conference volunteer |
| Alan Tennyson | Museum of New Zealand Te Papa Tongarewa, New Zealand |
| Gavin Thomas | University of Sheffield, UK BOUasm25 Scientific Programme Committee |
| Angharad Thomas - De Paul | Oxford University, UK |
| Anna Thompson | University of East Anglia, UK |
| Jessica Tir | Charles R. Conner Museum, USA |
| Shriya Uday | University of Sheffield, UK |
| Hein Van Grouw | Natural History Museum, UK |
| Juliet Vickery | British Trust for Ornithology, UK |
| Leila Walker | British Ornithologists' Union |
| Andreanna Welch | Durham University, UK BOUasm25 Scientific Programme Committee |
| Judy White | Natural History Museum, UK |
| Peter Wilkinson | |

#BOUasm25

A day at the museum: collections-based ornithological research in a changing world

18 November 2025 | Natural History Museum, London & Teams & Bluesky



| | |
|------------------|--|
| Abigail Williams | |
| Zach Williams | Natural History Museum, UK BOUasm25 conference volunteer |
| Joe Wynn | University of Liverpool, UK |
| Zhifan Xu | University of St Andrews, UK |
| Natalia Zielonka | University of Kent, UK Chair, BOU Engagement Committee BOUasm25 conference volunteer |