



#BOU2024

Urban Birds

University of Nottingham & X(Twitter)

9 - 11 April 2024

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Urban birds

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Welcome to #BOU2024 – the BOU's 2024 Annual Conference

Welcome to the annual BOU conference for 2024. This year the conference is themed on *Urban birds*. Estimates indicate that urban areas cover somewhere around 2% of the land, depending on how urban is defined and measured, and this area is going to continue to expand. This will put pressures on species. It will drive declines in the populations of some species and result in changes in communities, behaviour and physiology of others. Understanding the interactions between people and birds in the urban environment will be invaluable to managing urban areas, and also managing the two-way interactions between people and birds. It will help us to understand the impact we are having on birds, and the impacts and potential impacts that could have on people.

As with all BOU annual conferences, the unifying theme here is ornithological science. Speakers and delegates from across the world come from a range of backgrounds and disciplines, but birds are at the centre of the research. The speakers and presenters will share their high-quality research on a wide range of topics. Each day has themed sessions with talks on similar areas and disciplines grouped together, so over the conference talks cover behaviour and physiology, food sources, gut microbiomes, morphology, pollution, and communities.

The conference is about more than sharing results. As the second face-to-face BOU conference since 2019 we hope that it presents an opportunity to catch up with one another, and make new links and collaborations. As with all BOU annual conferences we are especially welcoming to Early Career Researchers, and hope they leave with connections and enthusiasm. We invite all of you, no matter what stage of career, to engage and interact through questions and discussions as part of the scientific and social programme. The BOU is a community of active, interesting and interested researchers all of whom are linked through ornithology. We very much hope everyone will genuinely feel they belong in this community and will enjoy being at the heart of it over the next few days.

I hope that you all enjoy the conference.

Graeme Buchanan | BOU President

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Code of Conduct

We welcome everyone to BOU events, be these in person or online.

We work hard to engender and promote a welcoming environment that is collaborative, supportive and engaging for everyone involved. Our events provide opportunities to share, develop and broaden viewpoints in a safe and inclusive environment.

We celebrate diversity in all its forms and expect that all our participants are respectful and considerate of each other, that they provide supportive critique, and embrace the multitude of opinions that are on offer.

If you have any concerns, or feel that any participant of an event has breached this code, or have suggestions for how we can make our events more inclusive and productive, please contact any member of the BOU staff, BOU's Meetings Committee or event organisers (named contacts are listed in all event programmes).

During an event, please report any incident as soon as you feel able, to allow us to act upon your concerns. Any reports will be handled in confidence.

Your primary contacts for any issues that may arise during this conference are:



Graeme Buchanan
BOU President



Leila Walker
BOU Chief Operations Officer

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The **British Ornithologists' Union** (BOU), founded in 1858 by Professor Alfred Newton FRS, is one of the world's oldest ornithological bodies. The BOU's mission is to promote ornithological science across the international scientific community, support the individuals who contribute to that science, and grow understanding of that science among a wider community.

To help achieve this mission, the BOU organises conferences that facilitate the sharing of high-quality ornithological science, to as many of the global ornithological community as possible, overcoming barriers to attendance and enabling widespread knowledge exchange and sector strengthening.

The BOU further achieves its mission by the quarterly publication of our international journal, IBIS. Published since 1859 by the British Ornithologists' Union, IBIS is an international journal publishing innovative research in ornithological science, with special emphasis on the behaviour, ecology, evolution and conservation of birds. We publish peer-reviewed original papers, reviews, short communications and forum articles. Our international scope, authorship, and readership allows us to drive development and have impact in the field.

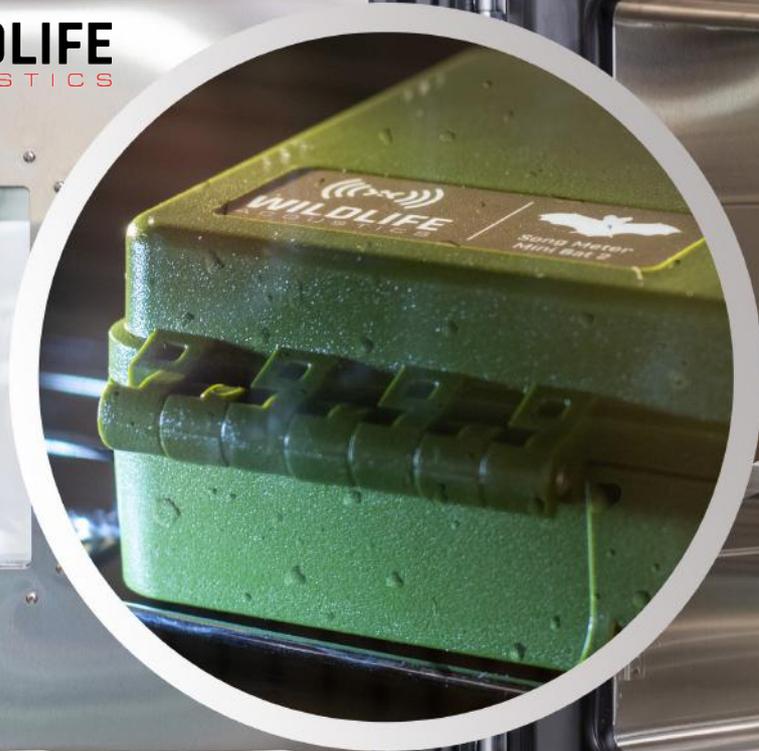
ACKNOWLEDGEMENTS

Urban birds, a conference organised and delivered by Christine Howard (Durham University, UK), Davide Dominoni (University of Glasgow, UK), Caroline Isaksson (Lund University, Sweden), Kate Plummer (British Trust for Ornithology, UK), Leila Walker (BOU) and Angela Langford (BOU) on behalf of the British Ornithologists' Union. The BOU would like to thank Catriona Morrison (University of East Anglia, UK), Alice Risely (University of Salford, UK), Sarah Deans (Lotek, UK), Arjun Amar (Fitzpatrick Institute of African Ornithology, South Africa) and Natalia Zielonka (RSPB, UK) for organising and running the pre-conference Early Career Researcher (ECR) workshops.

The BOU is grateful to the individual speakers and their respective organisations for presenting their work at the conference.

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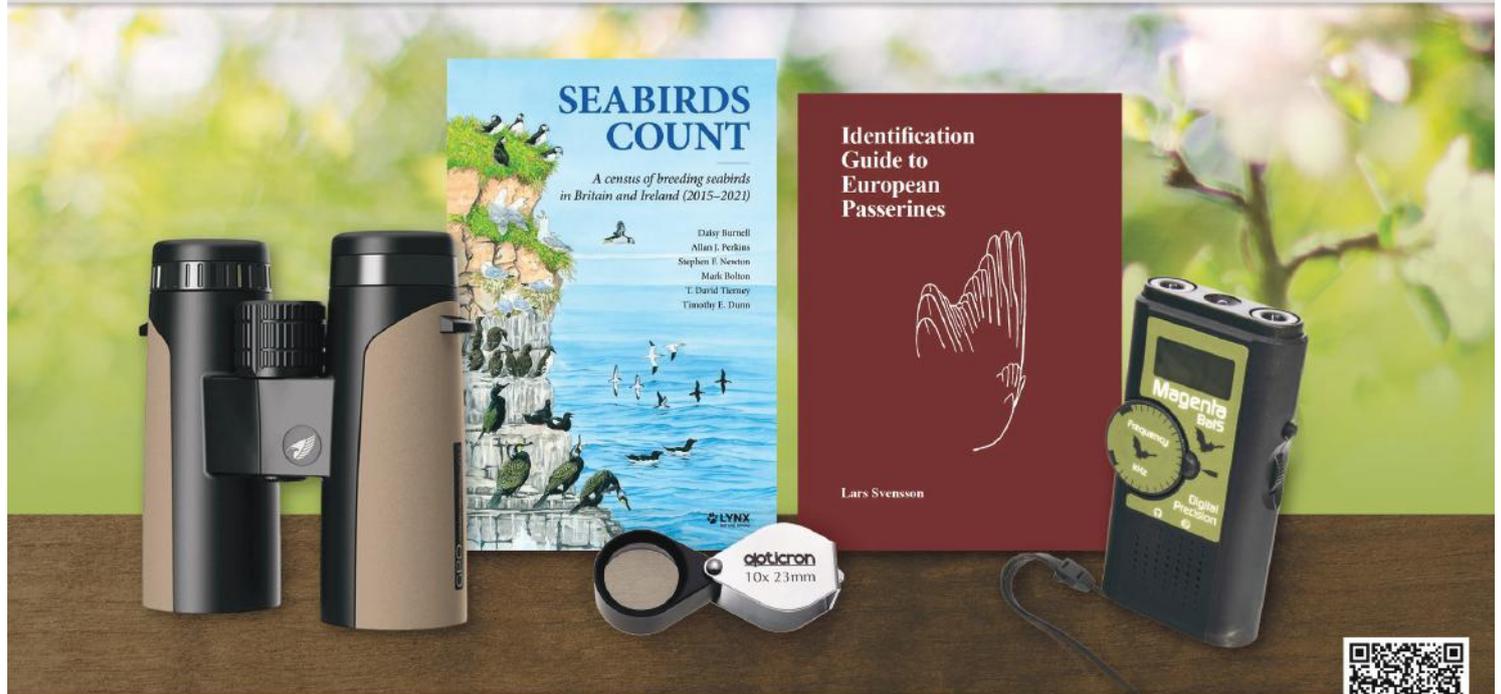
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Volume 34 Number 3 December 2022



SHIP RATS IN BRITAIN AND IRELAND - IDENTIFICATION OF WHITE WINGED FLYING
WILDS OREWOODS IN LOWLAND ENGLAND - PLANS ON THE MOVE
HENRY WILLIAMSON - NATURE WRITERS AND CONSERVATIONIST

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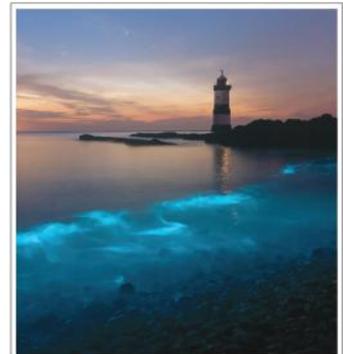
Volume 34 Number 8 August 2023



THE SANDHILL RUSTIC MOTHS - BORIS JOHNSON'S GREEN LEGACY
SHAPESHIFTING HOLLIES - CONSERVATION TRANSLOCATIONS IN BRITAIN
ARE NEST BOXES FOR SWIFTS A GOOD IDEA?

**BRITISH
WILDLIFE**

Volume 33 Number 8 August 2022



FIVING FOR NATURE - SUPPLEMENTARY INVERTEBRATES IN WYE GORGE,
BRAND EIGHT NINE - BIODIVERSITY PLANKTON IN BRITISH SEAS
A LONG-TERM PERSPECTIVE ON REVULGING WOODLAND

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2019

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9-11 April 2024 | In-person and on Twitter (X)



PROGRAMME

- All times are in British Summer Time (BST) – please use this time zone convertor for your local time: <https://www.timeanddate.com/worldclock/converter.html>
- In-person presenters will post a summary of their presentation on X(Twitter) during their presentation slot.
- X(Twitter)-only and poster presentations will be posted on X(Twitter) during #BREAK1 & #BREAK2.

DAY 1 – TUESDAY, 9 APRIL 2024

- 1400 -1700 ECR Workshops | The Exchange (C1 / C4 / C34)
- 1500 - 1800 Accommodation check-in | Jubilee Welcome Point (Newark Hall)
- 1700 Registration opens | The Exchange
- 1700 - 2200 Time to view posters, exhibits & Twitter(X) presentations | The Exchange (C3)
-

X(TWITTER) PRESENTATIONS

#BREAK1

- 1620 **Tiny Forest: exploring potential as living labs for urban bird research**
X-only Daniel Hayhow (he/him/his) | Earthwatch Europe, UK | @DBHayhow
- 1630 **Assessing the bird feeding guild patterns in urban areas of Maroua, Cameroon**
X-only Jean Tonleu | University of Dschang, Cameroon | @TonleuSir
- 1640 **Town birds in Tenerife: ecology of the urban-rural gradient**
X-only Alex Nicol-Harper (she/her) | Wildfowl & Wetlands Trust & University of Oxford, UK | @alexnicolharper
- 1650 **The importance of public engagement at an urban bird reserve: The PODA reserve in Bulgaria**
X-only David Nicholas Clark | Independent (ex. Birmingham University, UK) | @daveclark77
- 1700 **Avian fauna of Dhaka city, their habitats, occurrence, and conservation**
X-only Sharif Hossain Sourav | German Aerospace Center (DLR) | @sourav_nature
- 1710 **Understanding the interplay between the gut microbiota, behaviour and urbanisation in wild birds**
Poster & X Vildan Acar | University of East Anglia, UK | @vildanhere
- 1720 **Associations between urbanization and avian communities in the Afrotropics: evidence from taxonomic, functional and phylogenetic diversity**
Poster & X Adewale G. Awoyemi (he/him) | University of Granada, Spain | @AdewaleAwoyemi
- 1730 **Seasonal patterns of occurrence and abundance of Black-winged Lapwings in a peri-urban area**
Poster & X Philip Whittington | East London Museum, South Africa | @IBIS_journal
- 1740 **Behavioural responses of blue tits to novel sound / novel object in urban vs rural habitat**
Poster & X Julia Mackenzie (she/her) | Anglia Ruskin University, UK | @_Mackenzie_23

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- 1750 ***Chlamydia psittaci* in the urban environment: insights from Antwerp's pigeons**
Poster & X Valentin Adrian Kiss (he/him) | University of Antwerp, Belgium | @valentinkiss07
- 1800 **Urban tolerance does not protect against population decline in North American birds**
Poster & X Julianna Azaria Petrenko (she/her) | Queen's University, Canada | @JulAzariaPet
- 1820 **Birds of Prague 1800-2020: birds in the city and a story of a hero**
Poster & X Petr Voříšek | Czech Society for Ornithology/European Bird Census Council | @VorisekP
- 1830 **Improving understanding of mallard productivity, survival and movement**
X-only Hannah Coburn (she/her) | University of Essex, UK | @HannahECoburn
- 1840 **House Sparrows and urban density in Ottawa, Canada**
X-only Anthony Gaston (he/him) | Tony Gaston Consulting, Canada | @knomealone
- 1850 **Movements of the Northern Cardinal across urban green spaces during the winter season**
X-only Anne-Marie Cousineau (she/her) | McGill University, Canada | @anne_marie_bio

1900 **DINNER** | The Atrium

ALFRED NEWTON LECTURE | THE EXCHANGE (C.LT2)

#ALFREDNEWTONLECTURE

- 2030 **Welcome**
Graeme Buchanan | BOU President & RSPB, UK
- A bird's eye view of behavioral and demographic processes that shape avian communities in an urbanizing world**
Amanda D. Rodewald | Garvin Professor of Ornithology and Senior Director of the Center for Avian Population Studies, Cornell Lab of Ornithology and Department of Natural Resources and the Environment, Cornell University, USA | @IBIS_journal
- 2200 Time to view posters and exhibits
- 2330 **BAR** | Newark Hall



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DAY 2 – WEDNESDAY, 10 APRIL 2024

0730 **BREAKFAST** | The Atrium

X(TWITTER) PRESENTATIONS

#BREAK2

- 0800 **Anthropogenic noise affects acoustic parameters of the territorial song of Western Australian magpie**
X-only Grace Blackburn (she/her) | The University of Western Australia | @G_Blackburn_
- 0810 **Green spaces and water body support bird species diversity across urban parks in Kuala Lumpur, Malaysia**
X-only Fudzla Zulfa Khiruddin (she/her) | The National University of Malaysia | @fudzulfa
- 0820 **Citizen science data reveal distinct bird-window collision patterns in a subtropical Asian island**
X-only Chi-Heng Hsieh (she/her/hers) | National Taiwan University, Taiwan | @ginny_r10b44004
- 0830 **Study on relationship between various habitat and feeding guilds of birds in and around Rajkot, Gujarat**
X-only Bhargavi L. Thaker (she/her) | Christ College, India | @ThakerBhar66373
- 0840 **Urbanisation and personality traits: a preliminary study on risk-taking behaviour in female Jackdaws**
X-only Margaux Vanhussel | University of Liège, Belgium | @MargauxVhl
- 0850 **Not in the countryside please! Investigating UK residents' perceptions of the introduced Ring-necked Parakeet**
X-only Alessandro Pirzio Biroli | GHD, UK | @apb_birds

0830 Registration opens | The Exchange

SESSION 1 – PHYSIOLOGY AND BEHAVIOUR | THE EXCHANGE (C.LT2)

#SESH1

Chair: Caroline Isaksson | Lund University, Sweden | @Carolinelsak

0900 **WELCOME TO THE CONFERENCE**
Graeme Buchanan | BOU President & RSPB, UK

0905 **KEYNOTE**
Hormones in the city: Do endocrine traits affect urban tolerance?
Fran Bonier | Queen's University, Canada | @IBIS_journal



0935 **City brains and country brains: Untangling the relationship of neuroanatomy and urban tolerances**
Allen Vikram Chochinov (he/him) | Queen's University, Canada | @VikramofToronto

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- 0950 **Endocrine flexibility and FKBP5: Promising physiological targets for conservation**
Lynn B. Martin | University of South Florida, USA | @MartinlabUSF
- 1005 **Is hemoglobin a useful health biomarker of air pollution? Insights from measurements in wild bird populations from urban and rural areas**
Susana Garcia Dominguez (she/her) | Lund University, Sweden | @suus_gd
- 1020 **Reviewing the impacts of air pollution on terrestrial birds**
Madeleine Barton | British Trust for Ornithology, UK | @madgrace24
- 1035 **Speedy Posters!**
30 second poster elevator pitches | Various presenters
-

- 1045 **TEA & COFFEE** | The Exchange (C3)
Time to view posters and exhibits
-

SESSION 2 – GUT MICROBIOMES IN URBAN BIRDS | THE EXCHANGE (C.LT2) #SESH2

Chair: Lynn B. Martin | University of South Florida, USA | @MartinlabUSF

1130 **KEYNOTE**

Causes and consequences of variation in the gut microbiome of urban and non-urban birds: Insights from correlational and experimental data

Pablo Capilla-Lasheras | University of Glasgow, UK | @p_capi



1200 **Effects of urbanization and diet on the microbiome of great tits: Various scales**

Coralie Drack (she/her) | University of Toulouse, France | @cdrack_PhD

1215 **The effect of an urban diet on the gut-microbiome of feral pigeons (*Columba livia domestica*)**

Camille Troisi (she/her) | Ghent University, Belgium | @CamilleTroisi

1230 **Spatio-temporal Usutu virus impacts on Common Blackbird populations**

Jurrian van Irsel | Netherlands Institute for Ecology | @JurrianvanIrsel

1245 **LUNCH** | The Exchange (C3)

Time to view posters and exhibits

1315 - 1400 **WILDLIFE ACOUSTICS WORKSHOP**

Bioacoustics as a research tool for birds: from data collection to analysis

Paul Howden-Leach | Wildlife Acoustics | The Exchange (C1)

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SESSION 3 – MORPHOLOGY AND COLOURATION | THE EXCHANGE (C.LT2)

#SESH3

Chair: Davide Dominoni | University of Glasgow, UK | @dmdominoni

1415

KEYNOTE

Flying colours over the city: The effect of urbanisation on the interspecific variation in plumage colour

Lucas M. Leveau | CONICET-University of Buenos Aires, Argentina | @LucasLeveau



1445

The coloration of urbanization: Great Tits are paler in more urbanized areas within the city

Nicolas Bekka (he/him) | Institute of Ecology and Environmental Sciences of Paris, France | @Nicolas_Bekka

1500

Bird colouration in the city and under climatic changes

Lisa Sandmeyer (she/her) | Center for Functional and Evolutionary Ecology, France | @SandmeyerL

1515

Divergent selection in the urban environment: Urban short winged Blue Tits show an increased survival

Juan Carlos Senar (he/him/his) | Museum of Natural Sciences of Barcelona, Spain | @SenarJC

1530

TEA & COFFEE | The Exchange (C3)

Time to view posters and exhibits

SESSION 4 – FROM BEHAVIOUR TO COMMUNITY RESPONSES | THE EXCHANGE (C.LT2) #SESH4

Chair: Dan Chamberlain | University of Turin, Italy | @DanC_eco

1615

KEYNOTE

Facing the urban tapestry: Urbanization as a spatio-temporally filtering force for birds

Ian Macgregor-Fors (he/him) | University of Helsinki, Finland | @macgregorfors



1645

The impact of urbanisation on the demographic rates of Blue Tits

Claire Branston (she/her) | University of Glasgow, UK | @ClaireBranston

1700

Small town, scary town: House Sparrows escape slower in bigger but not necessarily denser settlements

Javier Quesada | Natural Sciences Museum of Barcelona, Spain | @MCNBzoologia

1715

Nest site selection and territory characteristics of Paridae in a mosaic urban environment

Sung Jin Park (he/him/his) | Seoul National University, South Korea | @wildlifekr

1730

Relationships between city characteristics and avian diversity and occurrence in Ontario's cities

Paul Preston (he/him) | Queen's University, Canada | @ppreston00

1800

BOU ANNUAL GENERAL MEETING | The Exchange (C.LT2)

Including Janet Kear Union Medal presentation | All welcome

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1830 **BOU ECR EVENT** | The Exchange Foyer (Ground Floor)

1800 - 1945 Time to view posters and exhibits | The Exchange (C3)

2000 **DINNER** | The Atrium

- 2330 **BAR** | Newark Hall

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DAY 3 – THURSDAY, 11 APRIL 2024

0730 **BREAKFAST** | The Atrium

0830 Registration opens | The Exchange

SESSION 5 – BIODIVERSITY IN THE CITY | THE EXCHANGE (C.LT2)

#SESH5

Chair: Christine Howard | Durham University, UK | @_choward

0900 **KEYNOTE**

Linking bird communities and socio-economic status in urban areas

Dan Chamberlain | University of Turin, Italy | @DanC_eco



0930 **Predicting bird species assemblages in planned housing developments**

Joe Cooper | British Trust for Ornithology, UK | @birdjoetweets

0945 **Local and among city predictors of variation in bird species richness**

Islamiat Abidemi Raji (she/her) | Queen's University, Canada | @Godknowsisable

1000 **Birds, butterflies, and humans: Insights from some Nigerian urban green spaces**

Umbule Mador (she/her) | A. P. Leventis Ornithological Research Institute, Nigeria | @MadorUmbule

1015 **Urbanizing Los Angeles: Using museums and atlas data to model bird occupancy changes over a century**

Sean Lyon (he/him) | University of California, Merced, USA | @slay_none

1030 **TEA & COFFEE** | The Exchange (C3)

Time to view posters and exhibits

SESSION 6 – THE ROLE OF ANTHROPOGENIC FOOD SOURCES | THE EXCHANGE (C.LT2) #SESH6

Chair: Juan Diego Ibáñez-Álamo | University of Granada, Spain

1115 **KEYNOTE**

Urban bird disease dynamics: Investigating the role of gardens and supplementary feeding

Hugh Hanmer | British Trust for Ornithology, UK | @HughHanmer



1145 **The evolutionary consequences of bird feeding within urban landscapes**

Marion Chatelain (she/her) | University of Innsbruck, Austria | @MarionChatel1

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1200 **Ecological traits associated with anthropogenic food use by birds in urban areas: A global review**

Arjun Amar (he/him) | Fitzpatrick Institute of African Ornithology, South Africa | @arjundevamar

1215 **Urban bird commensals maintain coexistence under extreme food shortages**

Malcolm Soh (he/him) | National Parks Board, Singapore | @Soh_Malcolm

1230 **Bird feeding as a tool to reconnect urban children to nature**

Johan Kjellberg Jensen | Lund University, Sweden | @JohankJensen1

1245 **LUNCH** | The Exchange (C3)

Time to view posters and exhibits

SESSION 7 – POLLUTION AND BEHAVIOUR | THE EXCHANGE (C.LT2)

#SESH7

Chair: Hugh Hanmer | British Trust for Ornithology, UK | @HughHanmer

1415 **KEYNOTE**

Evolutionary ecology of biological clocks: insights from urban birds

Barbara Tomotani | Arctic University of Norway (UiT), Norway | @babi_mt

1445 **The impacts of artificial light at night on the health of Great Tit nestlings**

Rachel Reid (she/her) | University of Glasgow, UK | @rachelrosereid3

1500 **Impact of pollution on the cultural evolution of Great Tit (*Parus major*) songs**

Marianne Sarfati (she/her) | Royal Holloway University of London, UK | @MarianneSarfati

1515 **Owls living in the city: Effect of urban cover, noise and light pollution on breeding Tawny Owls (*Strix aluco*) along a forest-urban gradient**

Giuseppe Orlando | University of Glasgow, UK | @beppe_orlando96

1530 **CONFERENCE CLOSE**

Graeme Buchanan | BOU President & RSPB, UK

1545 **TEA & COFFEE** | The Exchange (C3)

Departure



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ABSTRACTS

Abstracts for the oral programme are in programme order. Poster and X(Twitter)-only abstracts (from page 43) are in alphabetical order by the surname of the presenting author.

TUES, 9 APRIL, 2030

Alfred Newton Lecture



Amanda D. Rodewald

Garvin Professor of Ornithology and Senior Director of the Center for Avian Population Studies, Cornell Lab of Ornithology and Department of Natural Resources and the Environment, Cornell University, Ithaca, NY | @IBIS_journal

A bird's eye view of behavioral and demographic processes that shape avian communities in an urbanizing world

As the expanding footprint of cities envelops natural areas and brings humans in close contact with wildlife, there is growing urgency to understand the socioecological feedbacks that operate within urbanizing landscapes. A large body of literature shows that many of the defining characteristics of urban ecosystems, especially altered habitat structure, exotic plants, abundant mesopredators, anthropogenic food resources (e.g., birdfeeders), are associated with fairly predictable changes in avian community structure. Yet the behavioral and demographic mechanisms that underlie these community-level patterns remain poorly understood. From 2001-2014, my students and I studied birds within riparian forests distributed across a rural-to-urban landscape gradient in the U.S. Midwest. Consistent with previous work, we found that urbanization was negatively related to numbers of migratory birds but positively to residents and short-distance migrants. Behavioral mechanisms, such as settlement bias, territory selection, and resource-matching, explained many of the changes we detected better than demographic processes for our focal species. Despite mesopredator activity being much greater within urban than rural landscapes, we found no consistent signature on survival rates of adults, nests, or fledglings nor on annual reproduction. Instead, the manner in which predation affected bird populations was context dependent and strongly mediated by exotic plants and anthropogenic foods. In this lecture, I will share how human inputs fundamentally altered species interactions in ways that affected nest-site selection, the nature of predator-prey relationships, and the selective environment for breeding phenology and plumage coloration.



Amanda D. Rodewald is the Garvin Professor and Senior Director of the Center for Avian Population Studies at the Cornell Lab of Ornithology and the Department of Natural Resources and the Environment at Cornell University. Prior to joining Cornell in 2013, she spent 13 years as a professor at Ohio State University. She received a B.S. degree in Wildlife Biology from University of Montana, an M.Sc. in Zoology from University of Arkansas, and a Ph.D. in Ecology from Pennsylvania State University. Amanda leads an interdisciplinary research program that focuses on ecology, conservation biology, and socio-ecological dynamics in temperate and tropical ecosystems. Her recent research leverages participatory science / big data with field-based studies to address conservation challenges. She has published over 180 scientific papers, an Ornithology textbook, 10 book chapters, and over 70 popular articles and commentaries. Amanda is a fellow of the American Association for the Advancement of Science (AAAS) and the American Ornithological Society, from which she received the William Brewster Award in 2022. She also serves on the Science Advisory Board of the U.S. Environmental Protection Agency, has testified before Congress about conservation issues, and publishes regularly in *The Hill* about environmental policies. In addition to her research, Dr. Rodewald engages with a wide range of conservation practitioners, decision-makers, and leaders in government agencies, non-profit organizations, and the private sector to develop practical and innovative approaches to conservation that can accommodate social and ecological needs.

WEDS, 10 APRIL, 0905

KEYNOTE

Hormones in the city: Do endocrine traits affect urban tolerance?

Fran Bonier

Queen's University, Canada | @IBIS_journal



Species vary in their ability to cope with anthropogenic challenges, including urbanization. Many studies have characterized how hormone concentrations vary between urban and nonurban populations within species, likely reflecting plastic responses to urban challenges. However, these studies have failed to identify any patterns that can be generalized across cities or species. Other endocrine traits (e.g., endocrine plasticity, hormone receptors, negative feedback mechanisms) and other levels of variation (e.g., among-individual or among-species variation) might provide greater insight into links between endocrine traits and the urban ecology of birds. We investigated the potential for evolved variation in endocrine phenotypes to contribute to species-level differences in the ability to cope with urban challenges (hereafter, urban tolerance). We used quantitative estimates of urban tolerance for North American birds paired with decades of published data on hormone concentrations in the same species to investigate relationships between urban tolerance and

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endocrine phenotypes (specifically, baseline and stress-induced corticosterone and baseline testosterone). Our findings suggest that some endocrine phenotypes likely contribute to urban tolerance, but also indicate that other aspects of the endocrine phenotype, such as the ability to appropriately attenuate responses to urban challenges, might be important for success in cities.

Fran Bonier is an Associate Professor of Biology at Queen's University in Kingston, Ontario, Canada. Her integrative research explores how organisms cope with diverse challenges like changing temperatures, disease, competition, and urbanization. She approaches this aim from several perspectives, often investigating plastic changes in behaviour, physiology, and life history to better understand adaptations to challenges. Although she has studied an array of organisms, from marine invertebrates to mountain lions, her current research focuses on birds (and burying beetles).

WEDS, 10 APRIL, 0935 | ECR PRESENTER

City brains and country brains: Untangling the relationship of neuroanatomy and urban tolerances

Allen Vikram Chochinov (he/him)

Queen's University, Canada | @VikramofToronto

A large brain has been shown to be highly beneficial to species living in urban environments. We are working to determine what role individual brain regions play in urban tolerance. The relative size of a brain region corresponds to its processing capability and indicates the importance of that region's function to a species. Digital endocasts are a widely used method of modelling the brain using computed tomography (CT) of a skull and can provide estimates of the relative sizes of several brain regions. We compared the endocasts of 156 species of North American birds of varying urban tolerance to identify common collections of neuroanatomical traits, or cerebrotypes. Results suggest that distinct cerebrotypes might distinguish urban tolerant species from those that are urban avoidant. Identifying associations between specific brain regions, cerebrotypes and urban tolerance will build a clearer image of the importance of neuroanatomy for success, or failure, in cities.

Allen Chochinov is a PhD student at Queen's University in Kingston, Ontario, where he uses digital endocasts to study avian neuroanatomy. He has a background in paleontology and evolutionary biology having completed a master's degree studying the evolution of frugivory in New World leaf-nosed bats.

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WEDS, 10 APRIL, 0950

Endocrine flexibility and FKBP5: Promising physiological targets for conservation

Lynn B. Martin

University of South Florida, USA | @MartinlabUSF

Endocrine flexibility (EF) is an emerging concept recognizing that the individuals that will cope best with stressors will probably be those using their hormones in the most adaptive way. For glucocorticoid EF, the FKBP5 protein seems to play an integral role. FKBP5 appears to set the extent to which circulating glucocorticoid concentrations can vary within and across stressors. Thus, FKBP5 expression, and the EF it causes, seem to represent what many vertebrate biologists seek to measure in their study organisms, the individual's ability to regulate its hormones effectively in response to stressors. As FKBP5 expression can be easily measured in blood, it seems a worthy target of conservation-oriented research attention. In this talk, we first discuss the known and likely roles of glucocorticoid EF and FKBP5 in wildlife. We then describe how glucocorticoid EF and FKBP5 expression should affect organismal fitness and hence population viability in response to human-induced rapid environmental changes, particularly urbanization. This second part of the talk is based on a study of House Sparrows from Tampa, Florida, USA.

Lynn B. Martin is a professor in the Global Health Infectious Disease Research Center and Center for Genomics at USF. Lynn is interested in the molecular and physiological mechanisms whereby birds and other vertebrates act as reservoirs of infections and become pests in terms of expanding their geographic ranges into novel areas.

WEDS, 10 APRIL, 1005 | ECR PRESENTER

Is hemoglobin a useful health biomarker of air pollution? Insights from measurements in wild bird populations from urban and rural areas

Susana Garcia Dominguez (she/her)

Lund University, Sweden | @suus_gd

As urbanization increases worldwide, so does the exposure of urban wildlife to air pollutants. Physiological biomarkers, like hemoglobin levels, are increasingly utilized to assess how individuals cope with living in urbanized environments. In this study, we measured hemoglobin concentrations of Great Tits (*Parus major*) and Blue Tits (*Cyanistes caeruleus*) across urban and rural sites during the breeding season. Exposure to particulate matter and nitric oxides was also evaluated, alongside tracking measurements of reproductive output. Preliminary analyses suggest differences in

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hemoglobin levels between rural and urban chicks, although these differences seem to disappear in adults. Higher nitric oxide levels also appear to be correlated to lower hemoglobin levels. However, a more comprehensive investigation of the relationships among all variables will be carried out before the conference. Overall, our goal is to elucidate the validity of hemoglobin as a health biomarker, not only of individual condition, but also of air pollution exposure.

Susana Garcia Dominguez is a PhD student in Caroline Isaksson's group investigating the physiological effects of air pollution in both birds and bumble bees.

WEDS, 10 APRIL, 1020

Reviewing the impacts of air pollution on terrestrial birds

Madeleine Barton

British Trust for Ornithology, UK | @madgrace24

Air pollution has a ubiquitous impact on ecosystems, but characterising its impacts on species in the urban setting is challenging, not least because of the many interacting stressors within such modified environments. Here, we present the findings of a literature review, describing evidence for the impacts of air pollution on avian species in the wild, including those in urban habitats. Of the 168 studies found, 80% documented at least one species trait that is negatively correlated with pollution concentrations, including effects on reproductive output, body size, molecular damage, foraging behaviour, and plumage colouration. These responses were identified through various experimental approaches, including the utilization of spatial and temporal gradients in pollution concentrations. Biases in the literature towards certain species, geographical regions and pollutants were identified however, and we propose further work that could provide a more holistic understanding of how urban birds are impacted by air pollution.

Madeleine Barton is a research ecologist at the British Trust for Ornithology. Her work focuses on characterising species responses to environmental stress, with process-based and quantitative modelling approaches. Prior to joining the BTO she studied the impacts of agricultural management practices on beneficial and pest insects.

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WEDS, 10 APRIL, 1130

KEYNOTE

Causes and consequences of variation in the gut microbiome of urban and non-urban birds: Insights from correlational and experimental data



Pablo Capilla-Lasheras (he/him)

University of Glasgow, UK | @p_capi

Recent work highlights that the urban environment has a distinct microbiome, harbouring pathogenic species and antimicrobial resistance genes that could be transmitted to wildlife and humans. Interestingly, evidence suggests that urban birds have different gut microbiomes compared to their non-urban counterparts. However, the eco-evolutionary causes of this difference in gut microbiomes are not well understood. Amongst the novel stressors that birds face in cities, shifts in diet are prevalent, have negative survival consequences (particularly for growing nestlings) and can dramatically impact the composition of the gut microbiome. Here, combining correlational and experimental data on 16S amplicon sequencing and metagenomics, I show how the urban environment induces shifts in the gut microbiome of Blue Tits (*Cyanistes caeruleus*). These shifts are consistent and mediated by few bacterial taxa associated with urban environmental conditions. I then specifically explore the role of diet in driving gut microbiome changes in urban birds. Finally, I discuss the link between gut microbiome composition, growth, and survival in urban and non-urban birds.

Pablo Capilla-Lasheras has made understanding how human-induced environmental change affects animals his career purpose, after a PhD in a pristine African landscape, studying the social lives of White-browed Sparrow Weavers. He takes an integrative approach and combines different disciplines. The goal of Pablo's research is to understand the direct and indirect (e.g., via changes in animal behaviour) effects of human-induced environmental change on the dynamics of host-associated microbiomes, and their consequences for evolution, animal welfare and human health.

WEDS, 10 APRIL, 1200 | ECR PRESENTER

Effects of urbanization and diet on the microbiome of Great Tits: Various scales

Coralie Drack (she/her)

University of Toulouse, France | @cdrack_PhD



Urbanization brings radical environmental changes which have led to the appearance of urban phenotypes. Since the gut microbiome may contribute to host phenotypic plasticity in the face of rapid environmental changes, we attempt to examine the impact of urbanization on the gut microbiota of a wild bird by focusing more specifically on the influence of urban-induced dietary shifts. We address this question by examining both the gut microbiome (16S) and diet (metabarcoding) from feces collected from Great Tits along several urbanization gradients across France. I will investigate to what extent urban-induced diet shifts explain variation in the gut microbiome and examine whether these changes are consistent across cities or whether there are any local specificities. Our data also comprises a finer-scaled urbanization gradient in Toulouse which includes city parks and private urban gardens (as part of a citizen science project), which allows me to investigate the influence of micro-geographic factors.

Drack Coralie is a PhD student in the Laboratory of Evolution and Biological Diversity (EDB). Her research mainly focuses on functional alterations of gut microbiomes induced by urbanization. She is interested in the impacts of dietary and seasonal shifts on the gut microbiome of birds. Her project also includes study of the link between microbiota and immunity.

WEDS, 10 APRIL, 1215

The effect of an urban diet on the gut-microbiome of feral pigeons (*Columba livia domestica*)

Camille Troisi (she/her)

Ghent University, Belgium | @CamilleTroisi

In the lab, diet has been found to greatly influence cognition, particularly during development. One of the processes through which this takes place is the gut-brain axis, where the gut-microbiome influences how animals make decisions, such as during spatial exploration and navigation. In urban environments, species such as pigeons, are often exposed to high-fat high-sugar diets, which differ substantially from their original grain diet. In this presentation I will discuss the effect of a high-fat high-sugar experimental manipulation on the gut-microbiome of feral pigeons, as a first step to understand the relationship between diet and pigeons' navigation skills. A high-fat high-sugar diet and a regular (control) diet were provided to 2 groups of young pigeons for 4 weeks (n=96). Through a longitudinal study, where we collected cloacal samples for 16 weeks after the initial diet, I will also discuss how long-lasting the effects of diet are on pigeons' gut-microbiome.

Camille Troisi is a behavioural ecologist interested in social behaviour and cognition, particularly to understand how individuals deal with the environmental challenges they are faced with. Currently she focus on early-life experiences and how they influence individual's decisions, and the role the gut-microbiome plays in the relationship between diet and cognition.

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WEDS, 10 APRIL, 1230 | ECR PRESENTER

Spatio-temporal Usutu virus impacts on Common Blackbird populations

Jurrian van Irsel

Netherlands Institute for Ecology | @JurrianvanIrsel

In recent decades, mosquito-borne pathogens like West Nile virus and Usutu virus (USUV) have surged, causing a significant increase in avian mortality worldwide. Understanding the factors driving these outbreaks is crucial. Urbanization may boost the population sizes of host and vector species, facilitating pathogen circulation and potential spillover to humans. To study the impact of urbanization on USUV in Common blackbirds, we modelled the USUV occurrences in the Netherlands using bird mortality surveillance. We observed a significant decline in Common Blackbird populations in areas affected by USUV, with more pronounced declines in urban environments compared to natural habitats. These findings contribute to the assessment of the Dutch surveillance system's capacity to identify high-risk areas for pathogen outbreaks and those factors contributing to local transmission and amplification cycles.

Jurrian van Irsel is a PhD-Candidate at the Netherlands Institute for Ecology.

WEDS, 10 APRIL, 1315

WILDLIFE ACOUSTICS WORKSHOP

Bioacoustics as a research tool for birds: from data collection to analysis

Paul Howden-Leach

Wildlife Acoustics | @WildlifeAcoust

A workshop looking at bioacoustics as a research tool for the study of birds. The workshop will look at the potential of bioacoustics in general followed by a walk-through of some equipment and potential deployment options to fit in with a variety of standard and non-standard protocols. Case studies will be used, and attendees own specific deployment needs will be addressed to design the most appropriate schedule for their potential study. Following on from this the workshop will move on to data analysis using Kaleidoscope Lite and Kaleidoscope Pro. This element of the workshop will focus on signal extraction, rapid data analysis, and building species classifiers. No previous experience in bioacoustics is needed.



WEDS, 10 APRIL, 1415

KEYNOTE

Flying colours over the city: The effect of urbanisation on the interspecific variation in plumage colour

Lucas M. Leveau

CONICET-University of Buenos Aires, Argentina | @LucasLeveau



The urbanisation process is increasing around the world, especially in biodiverse regions where birds are colourful. However, little is known about the effects of urbanisation on bird colors at the community level. The objective of this talk is to synthesise results obtained at different spatial and temporal scales in the Argentine pampas, and through different ways of measuring plumage colour. Along urban-rural gradients, colour diversity was less than expected for a given number of species in the more urbanised areas. The seasonal variation in colours was also less than expected in the more urbanised areas. The gray color was the predominant one, indicating a role of camouflage in the community assembly. An analysis controlling for phylogenetic relationships between species and other life history traits showed that the more urban species had uniform plumage, in contrast to the non-urban species. Uniform plumage can also favor camouflage against possible predators. Finally, the use of colours that consider the ultraviolet spectrum showed that species that inhabit urban parks are more colourful than non-urban species. Because the parks are more wooded than the rural areas of the pampas, this result is consistent with global patterns of bird colour where more colourful species are in the evergreen forests. The results obtained suggest that plumage colour is an important trait determining the presence of birds in urban areas.

Lucas M. Leveau is an Independent Researcher at the National Council for Scientific and Technical Research of Argentina (CONICET). Dr Leveau obtained his PhD from the National University of Mar del Plata (Argentina) in 2014 and is currently a researcher and professor at the Institute of Ecology, Genetics and Evolution of Buenos Aires (UBA-CONICET). His main research topic focuses on the spatial and temporal patterns of bird communities in urban environments. During the last few years, Lucas has analyzed how urbanization homogenizes the composition of birds in cities from different regions, as well as the seasonal and interannual dynamics of bird composition. He is also interested in analyzing how urbanization acts as a filter for the bird species, considering traits such as diet, nesting, and plumage color. To date, Lucas has published 57 scientific articles and is a member of the editorial staff of ornithology and urban ecology journals.

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WEDS, 10 APRIL, 1445 | ECR PRESENTER

The coloration of urbanization: Great Tits are paler in more urbanized areas within the city

Nicolas Bekka (he/him)

Institute of Ecology and Environmental Sciences of Paris, France | @Nicolas_Bekka

The growing urbanization of landscapes offers a unique insight into the eco-evolutionary mechanisms occurrences in a changing habitat. Urban-driven phenotypic differentiation is increasingly often demonstrated but still at a dichotomic scale, comparing urban to rural populations. This study aims to go further by quantifying the urbanization inside the city and switching from categorial to continuous urbanization variables. Data from 10 years of Great Tit (*Parus major*) continuous monitoring in Paris, France, were analyzed, and linked with the amount of impervious surfaces and pollution in Great Tit territories during reproduction. These results highlight that birds' feathers coloration correlates with the degree of their territories' urbanization, inside the urban matrix. These results go further than the usual urban/rural comparison, confirming that urbanization seems to influence colored signal expression, even at fine and continuous scales.

Nicolas Bekka is a 2nd-year Ph.D. Student at Sorbonne University, Paris, France, where he received a bachelor's and a master's degree in life sciences and evolutionary ecology. He is interested in urban ecology and the evolution of urban Blue and Great Tits' coloured signals.

WEDS, 10 APRIL, 1500 | ECR PRESENTER

Bird colouration in the city and under climatic changes

Lisa Sandmeyer (she/her)

Center for Functional and Evolutionary Ecology, France | @SandmeyerL

Rapid shifts in urbanisation and global warming drive morphological changes across various traits and taxas. Nevertheless impacts on ornamental colouration remain unclear. We tackled this issue by analysing a decade of data from urban and forest Great Tit (*Parus major*) populations, uncovering urban impact, temporal trends, and climate change associations. For the first time, we highlight that urbanisation affects not only pigment-based feather colour but also its structural dimensions, with less reflectance in the ultraviolet and duller birds, partially challenging usual findings. Age and gender variations also emerged. However, the climate link remained inconclusive, despite correlated urbanisation and climate. A temporal quadratic pattern appeared, indicating shifts in the population's colouration. Our work supports the idea that urban ecosystems are the theatre of profound phenotypic changes, affecting avian plumage both structurally and chromatically. Ongoing research

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explores differential survival and common garden experiments, offering us insights into urbanisation's role in avian colouration.

Lisa Sandmeyer is a 2nd year PhD student at the Center for Functional and Evolutionary Ecology, in Montpellier, France. She is currently working on the drivers of the colouration of Great and Blue Tits, whether it is urbanisation, survival or ageing.

WEDS, 10 APRIL, 1515

Divergent selection in the urban environment: Urban short winged Blue Tits show an increased survival

Juan Carlos Senar (he/him/his)

Museum of Natural Sciences of Barcelona, Spain | @SenarJC

In recent years, many studies have provided evidence of phenotypic divergence between urban and nonurban populations. However, just a few studies have shown conclusive evidence that the urban-driven phenotypic shifts are the result of natural selection. Urban Blue Tits are known to have shorter wing-lengths than forest conspecifics. Here we analyse the survival rate of urban and forest Blue Tits according to wing length, using capture-recapture data from 2010-2023. When modelling survival, we found that survival prospects in urban Blue Tits decreased with increasing wing length. There was no evidence of selection on wing length for forest birds. The difference in slopes between the two habitats was significant. These results show that the habitat-driven phenotypic change in wing length of urban blue tits provides a fitness advantage, and hence, that these changes are likely to be the result of divergent natural selection and urban adaptation.

Juan Carlos Senar has been working for more than 30 years on the topic of Contemporary Evolution in species subject to Global Change, since this change of anthropogenic origin, mainly climate change, urbanization and invasive species, accelerates the rates of evolution. He is based at the Natural Sciences Museum of Barcelona.

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WEDS, 10 APRIL, 1615

KEYNOTE

Facing the urban tapestry: Urbanization as a spatio-temporally filtering force for birds

Ian Macgregor-Fors (he/him)

University of Helsinki, Finland | @macgregorfors



We know that urbanization represents a barrier for many wildlife species that dwell in the surroundings of cities, but why? To date, research has shown that the changes implied by urbanization and the functioning and development of cities represent a multi-dimensional ecological ‘filter’ for biodiversity. Among wildlife groups, birds have been extensively studied to understand this filtering process. Individuals colonizing an urban system or staying in a habitat that has been recently urbanized need to overcome both the extrinsic (e.g., urban infrastructure, food predictability, human activities, urban hazards, inter-specific interaction) and intrinsic filter variables, ranging from genetic to behavioral changes or adjustments. A robust body of knowledge has shown the importance of the behavioral component as part of this process, which may be a game changer for individuals facing the spatiotemporal dynamic urban filters, often after other traits and mechanisms have played their role. Studies have recurrently shown that the identification of cues by birds in novel systems—often determined by extrinsic factors—and learning processes, among other factors, have important impacts on decision-making and innovation (traits that have been linked with urban thriving). Thus, an integrative mechanistic framework was recently suggested based on the process experienced by birds that reach a city and manage to persist in the novel system (becoming urban ‘utilizers’) or those that dwell in an urbanized region and increase their fitness through behavioral responses and adaptations, leading to population persistence (becoming urban ‘dwellers’).

Ian Macgregor-Fors, Professor of Urban Biodiversity and Ecosystems at the University of Helsinki, is driven by a lifelong passion for birds. His research focuses on avian responses to human activities, particularly in cities and towns. He has published over 130 scientific papers, 27 book chapters, 4 books, and 25 popular science articles. Since 2012, he promotes the implementation of the UN’s Convention on Biological Diversity in cities as an Advisory Board Member of the International Network Urban Biodiversity & Design (URBIO).

WEDS, 10 APRIL, 1645

The impact of urbanisation on the demographic rates of Blue Tits

Claire Branston (she/her)

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University of Glasgow, UK | @ClaireBranston

Urbanisation is one of the most widespread forms of contemporary environmental change. It is well documented that many urban birds show reduced reproductive performance in cities compared to rural conspecifics, but despite this reduced reproductive performance, many species persist and thrive in urban environments. To date, there has been little research into the demographic rates of urban populations. Using 10 years of data from one forest and one urban population of Blue Tits in Scotland, we are currently analysing whether there are any differences in survival between urban and forest birds and whether urban populations rely on immigration to be sustainable. These results will help to further our understanding of the demography of urban populations, and how urban areas may be enhanced to benefit birds residing there.

Claire Branston is currently a post-doc at the University of Glasgow, and her main research interest is how species respond to environmental change. Much of her research to date has investigated how life history traits, such as phenology and productivity, are altered due to urbanisation and climate change.

WEDS, 10 APRIL, 1700

Small town, scary town: House Sparrows escape slower in bigger but not necessarily denser settlements

Javier Quesada

Natural Sciences Museum of Barcelona, Spain | @MCNBzoologia

Habituation to humans has traditionally been used to explain why bird species are bolder in large cities compared to less urbanized areas. However, other ecological factors related to the size of the city (such as food availability and predictability, competition or presence of predators) may play an important role in explaining this pattern. We assessed how the anti-predatory/escape behaviour (Flight initiation distance, FID) of the House Sparrow varied in 31 settlements with different sizes and human densities in Northeast Spain to disentangle the role of human density (habituation) versus city size. Our results showed that House sparrows displayed shorter FID's (i.e bolder behaviour) in larger human settlements, but not necessarily in denser ones. Hence, ecological factors related to the size of the city suggest that "systemic habituation" is more important than mere habituation to human presence and frequentation.

Javier Quesada combines the vertebrates collection management at the Barcelona museum with research lines on behavioural ecology, focusing on sexual and social selection, and disturbance ecology. In particular, Javier studies how the processes of human-related disturbance (urbanisation, population management) affect birds, and how they cope with them from an adaptive perspective.



WEDS, 10 APRIL, 1715

Nest site selection and territory characteristics of Paridae in a mosaic urban environment

Sung Jin Park (he/him/his)

Seoul National University, South Korea | @wildlifekr

Urban biodiversity conservation is vital with increasing urbanization. This study focuses on Paridae (*Parus varius*, *P. minor*, *P. palustris*) breeding behaviors in a mosaic urban environment. Nest site selection, territory traits, and urban factors were analyzed using nest searches, nest box surveys, and territory mapping in a university campus. *P. varius* and *P. minor* mainly breed in nest boxes, *P. palustris* in tree cavities. *P. minor*'s nest cavities were larger with more eggs/nestlings than *P. palustris*. *P. varius* chose nest boxes near forest edges, *P. major*'s nests had higher green ratios. Territories averaged 3.49ha (*P. varius*), 1.66ha (*P. minor*), 1.61ha (*P. palustris*). No inter-species territoriality was observed. Smaller, greener territories might enable efficient feeding, impacting breeding. The minimum green ratio of territory was c. 25-30%.

Sung Jin Park received his Ph.D. in titmouse ecology from the Department of Forest Sciences, College of Agriculture and Life Sciences, Seoul National University, and is currently working as an employee at the International Cooperation Center and Planning & Coordination Affairs at the same college.

WEDS, 10 APRIL, 1730 | ECR PRESENTER

Relationships between city characteristics and avian diversity and occurrence in Ontario's cities

Paul Preston (he/him)

Queen's University, Canada | @ppreston00

Urbanization is a major driver of global habitat change and has profound impacts on the abundance and diversity of species found in cities. This change in habitat presents a challenge to species that live in cities, and, in general, urbanization leads to a decrease in biodiversity. However, cities vary in their effects on local avian biodiversity, with some cities harbouring a higher diversity of bird life than others. To understand why this difference exists, we need to understand how species occurrence relates to characteristics of the cities themselves. We assessed relationships between urban factors such as light pollution, population density, greenness, and traffic volume and among-city variation in species occurrence and species richness across 15 cities in Ontario, Canada. Our findings reveal that

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features of cities predict avian diversity, suggesting means of preserving biodiversity in cities and mitigating effects of urbanization on birds.

Paul Preston is a PhD student in Dr Fran Bonier's lab at Queen's University studying the effects of urbanization of avian occurrence and behaviour. The main focus of Paul's research is understanding the causes of variation in urban tolerance among bird species.

THURS, 11 APRIL, 0900

KEYNOTE

Linking bird communities and socio-economic status in urban areas

Dan Chamberlain

University of Turin, Italy | @DanC_eco



Urbanization has multiple impacts on the environment. However, though depauperate, the biodiversity that persists in urban areas may provide a range of ecosystem services. Such benefits are, however, often not shared equally across different levels of society, biodiversity typically being higher in wealthier areas of cities (the Luxury Effect) which creates environmental injustice. Given that the global urban human population continues to grow, there is a need to develop cities sustainably and equitably whilst minimising effects on the environment. In this talk, I will use birds as an example group to consider two fundamental questions in urban ecology: How can we accommodate growing urban human populations whilst minimising impacts on biodiversity; and, how can we enhance urban biodiversity and ensure its benefits are accessible to all citizens? To formulate strategies for the sustainable development of cities, it is crucial to understand the relationship between biodiversity and its key drivers in urban areas, including habitat, disturbance, interactions with non-native species and socioeconomic context. I will present an integrated approach that involves understanding connections between natural value (i.e. features that maintain and enhance bird communities), societal value (i.e. how citizens value urban birds), and their interaction with socioeconomic aspects. The outputs can inform strategies for urban planning and management of green infrastructure (i.e. networks of healthy ecosystems) to enhance bird communities, and more generally biodiversity, for the benefit of urban residents across all levels of society, thus creating healthy, resilient cities for both people and birds.

Dan Chamberlain is Professor in Ecology at the University of Turin, Italy. In a career of nearly 30 years, he has produced a large body of work on the ecology of birds in a range of habitats. His current research has two main branches: assessing the impacts of environmental change on birds in

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alpine habitats; and, identifying drivers of urban animal communities, with a particular focus on the link between human socioeconomic status and biodiversity.

THURS, 11 APRIL, 0930

Predicting bird species assemblages in planned housing developments

Joe Cooper

British Trust for Ornithology, UK | @birdjoetweets

New housing developments often lack the ecological space for wildlife to also call them home, based on an assumption that houses and their immediate surroundings, are inherently wildlife poor. Yet, they can support a wide variety of species if designed to do so. I aim to demonstrate how species-habitat models can inform such designs. Plans for nine housing developments (baseline), were integrated into high-resolution digital maps to parametrise previously developed spatial models. Predictions for 55 common bird species were produced, alongside further predictions for designs with alterations to greenspaces, woodland, and housing configuration (scenarios). We found that biodiversity predictions for the baseline were lower than at least one scenario per development, and that the wider landscape influences how effectively scenarios increased species diversity. We aim to integrate the models into a decision-support tool to provide non-specialists from the planning and design sectors with localised biodiversity statistics based upon their designs.

Joseph Cooper is a Research Ecologist in the Terrestrial Ecology team at the British Trust for Ornithology. His work includes scenario modelling, exploring hypothetical changes in land-use and predicting the resulting impact on birds, and he also has a keen interest in bioacoustics, song learning and cultural evolution.

THURS, 11 APRIL, 0945

Local and among city predictors of variation in bird species richness

Islamiat Abidemi Raji (she/her)

Queen's University, Canada | @Godknowsisable

Urbanization drives profound landscape changes, impacting biodiversity. As cities expand worldwide, safeguarding urban biodiversity becomes important. Urban areas possess unique habitat characteristics that could guide city design for biodiversity conservation. While urbanization's impact on biodiversity is evident in ecological studies, standardized cross-city comparisons are lacking. To address this gap, we are collaborating with local experts and communities to conduct innovative

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urban bird surveys in several cities including Dakar, Nairobi, Paris, and Toronto. Our approach involves stratified, randomized sampling in city cores, using audio recordings to capture bird sounds during the dawn chorus. This process is repeated four times over the breeding season. The results of this study provide insight into the effect of urbanization on bird communities across multiple cities in countries with developed and developing economies, revealing the habitat features that might drive global variation in bird species richness. Our research can enhance insights into global urban biodiversity conservation.

Islamiat Abidemi Raji is a Postdoctoral Research Associate at Queen's University, Canada. Her work focuses on the effect of urbanization on birds. With a passion for nature, she specializes in behavioral studies exploring relationships between biodiversity, environments, and people. Her interests include Frugivore-Seed Dispersal and Human dimension of conservation.

THURS, 11 APRIL, 1000 | ECR PRESENTER

Birds, butterflies, and humans: Insights from some Nigerian urban green spaces

Umbule Mador (she/her)

A. P. Leventis Ornithological Research Institute, Nigeria | @MadorUmbule

Highly urbanized areas in West Africa have been little studied in terms of what might affect urban biodiversity. We investigated the key correlates of bird and butterfly species in thirty green spaces and how this drives visitor valuation to understand the potential of these spaces for biodiversity conservation and enhancing residents' well-being. Positive predictors of species abundance and richness were water bodies, rock cover, tree density, and grass cover. Noise level, anthropogenic modification, people encountered, tree and grass height had negative effects. Overall, an urban green space was best for bird and butterfly species if it was heterogeneous with minimal anthropogenic disturbance. Although some green spaces supported diverse bird and butterfly species, visitor valuation did not depend on species abundance or richness. Management practices should therefore prioritize biodiversity conservation based on environmental variables that do align with human preferences and that also benefit wildlife, but these remain to be identified.

Umbule Mador is an alumnus of, and an intern at, the A.P. Leventis Ornithological Research Institute. Her passion lies in avian and lepidopteran ecology with focus on long term monitoring and addressing research bias. I am actively involved in citizen science, conservation education and charity efforts to protect our natural world.

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THURS, 11 APRIL, 1015 | ECR PRESENTER

Urbanizing Los Angeles: Using museums and atlas data to model bird occupancy changes over a century

Sean Lyon (he/him)

University of California, Merced, USA | @slay_none

Los Angeles, California, U.S.A. (hereafter, L.A.) is a megacity that has experienced a meteoric rise in land area, population and global stature since the early 1900s. The unique biodiversity of the region has been preserved through a robust natural history record of bird nests and eggs collected during the latter part of the 19th century. Few cities have such a complete record of biodiversity before intense development. The museum data from L.A. present an opportunity to quantify the temporal effects of urbanization on breeding birds, which is important given that birds are indicators of environmental change. To address this opportunity, we used over 3,200 bird nest and egg records coupled with statistical modeling approaches to characterize the historical avian community of L.A. between 1870 and 1913. We then compared historical patterns of species occupancy to contemporary observations, using data from the Los Angeles Breeding Bird Atlas collected from 1995-1999. We found that historically-common species affiliated with grasslands and freshwater marshes have been nearly or completely extirpated from the region. Species affiliated with woodland habitats continue to occupy foothill communities of the Santa Monica and San Gabriel Mountains, which retain habitat that supports their populations. Our results demonstrate the uneven effects of urbanization on avian species guilds. Restoration projects that restore grasslands and freshwater marshes could likely help return the region's avifauna closer to its historical state.

Sean Lyon is an ornithologist with a background in museum ornithology and current work in behavioral ecology. Hailing from the United States, Sean hold a B.Sc. in Biology and Business from Wheaton College (Illinois), with an honors thesis focus on birds in Tanzanian agroecosystems. He holds an M.Sc. in Environmental Biology from California State University, Los Angeles, focusing on historical urban ecology of breeding birds in the Los Angeles Basin. Sean worked for three years in the Bird Collections at the Field Museum of Natural History in Chicago, working with birds killed by window collisions during migration. Sean recently studied Canada Jay (*Perisoreus canadensis*) feather microstructure while working as a Casanova Research Fellow at the Museum of Vertebrate Zoology at the University of California, Berkeley. Adding to his previous work on human effects on birds through agriculture and urbanization, Sean now researches the effects of the Mozambican Civil War on the behavior of Southern Ground Hornbills (*Bucorvus leadbeateri*) in Gorongosa National Park, Mozambique. Sean's website: www.seanclyon.com

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THURS, 11 APRIL, 1115

KEYNOTE

Urban bird disease dynamics: Investigating the role of gardens and supplementary feeding

Hugh Hanmer

British Trust for Ornithology, UK | @HughHanmer



Urbanisation presents a major threat to avian diversity. Nevertheless, sizable bird populations persist in urban environments, with many species benefiting from the widespread provision of nesting sites and food in gardens. Supplementary feeding is carried out year-round by many millions of garden owners. Although this can benefit some wild bird populations, and provide vital human-wildlife engagement opportunities, there is growing evidence that supplementary feeding may also inadvertently alter pathogen transmission dynamics. Feeding stations create foraging hotspots, encouraging birds to congregate at unnaturally high densities for prolonged periods. When this is combined with poor hygiene levels, allowing the build-up of contaminated food waste and faeces, it is likely that supplementary feeding is placing birds at greater risk of disease transmission.

In this talk, I will explain how I have been using long term citizen science monitoring data, and other research techniques, to explore the spread of avian disease in and around urban areas. In particular, I will focus on recent and ongoing research by BTO and our Garden Wildlife Health partners into the severe decline of Greenfinch *Chloris chloris* and more recently Chaffinch *Fringilla coelebs*. These declines have been linked to finch trichomonosis, a strain of the protozoan parasite *Trichomonas gallinae*. Our research has identified gardens and, by implication, supplementary feeding as a potentially major factor in its transmission and spread. By considering the declines in these two common species alongside other research in this area we can better understand the impact of urban areas and gardens on our wild bird populations.

Hugh Hanmer is a Research Ecologist in the British Trust for Ornithology (BTO) Terrestrial Ecology team. His research primarily focuses on urban ecology and avian demography using long and short-term citizen science surveys alongside novel field surveys. He has a particular interest in the impacts of and human-wildlife interactions around garden bird supplementary feeding, first started during his PhD at the University of Reading and continued at BTO.

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THURS, 11 APRIL, 1145

The evolutionary consequences of bird feeding within urban landscapes

Marion Chatelain (she/her)

University of Innsbruck, Austria | @MarionChatel1

Bird feeding is a widespread and extremely popular practice in urban areas throughout Europe, profoundly altering the type, the quantity and the spatial and temporal distribution of food available for birds within the urban space. By modifying bird foraging behaviour, bird feeding is likely to have consequences for the evolution of birds in urban environments, especially by exerting selective pressures (e.g. on beak morphology, behaviour, etc.) and/or by shaping gene flow. Analysing morphometric data from Great Tits and Blue Tits across 80 urban locations, I compared phenotypes between age groups to detect selective patterns in habitats with and without bird feeding. My results reveal that in areas where bird feeding occurs, birds with shorter beaks and, to a lesser extent, wider beaks, are advantaged. This supports the hypothesis that birds with massive beaks exploit bird feeders more effectively and emphasizes bird feeding's substantial role in urban bird evolution.

Marion Chatelain's research aims to uncover human impact on animal evolution. With a decade in urban ecology, she has shown the impact of metal pollution on birds and plumage melanism evolution. For three years, she is studying how food availability for birds varies within urban mosaics and whether such variation influences bird ecology and evolution.

THURS, 11 APRIL, 1200

Ecological traits associated with anthropogenic food use by birds in urban areas: A global review

Arjun Amar (he/him)

Fitzpatrick Institute of African Ornithology, South Africa | @arjundevamar

Exploitation of anthropogenic food resources may help species cope with an urban lifestyle. We extracted data on the percentage of anthropogenic food (AF) in the diet of bird species in urban habitats, through a global literature review, exploring which traits (dietary guild, geographic range size, body mass, territoriality, brain size) were associated with higher AF consumption. We obtained 424 estimates from 155 studies covering 133 species. Consumption of AF was unrelated to phylogeny, but varied between dietary guild with aquatic feeders, granivores and generalists consuming more anthropogenic food than dietary specialists (i.e. frugivores, nectivores, scavengers and vertivores). Anthropogenic food consumption also varied according to range size, with range-restricted species consuming more AF than widespread species. Our study quantified the level of anthropogenic food consumption across a wide range of bird species globally, highlighting the

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importance of maintaining natural food sources in urban areas to support birds with more specialists diets.

Arjun Amar is an avian ecologist and conservation biologist based at the FitzPatrick Institute of African Ornithology, University of Cape Town, South Africa, where he is an Associate Professor. Arjun's research focuses on understanding how birds respond to environmental change of many different forms (land use change, urbanisation, and climate change).

THURS, 11 APRIL, 1215

Urban bird commensals maintain coexistence under extreme food shortages

Malcolm Soh (he/him)

National Parks Board, Singapore | @Soh_Malcolm

Managing bird commensals is costly, yet our understanding of their interactions and dominance in cities remains poor. We surveyed feral pigeon, Javan Myna and House Crow abundances and niche dynamics in open food-centers, a primary food source, before and during COVID-19 social restrictions when dining-in was prohibited. While feral pigeon and Javan Myna abundances declined significantly during social restrictions, the relative abundances of all species were unchanged. Structurally more open food-centers closer to bridges and public housing attracted more birds. While the niche widths of feral pigeons and Javan Mynas narrowed significantly during social restrictions, their niche overlaps remained similar as resources were partitioned to cope with food shortages. This implied that control methods targeting the most abundant species could cause an ecological release and allow another species to thrive. Therefore, limiting anthropogenic food sources where commensal species are highly dependent is a more cost-effective means of collective population control.

Malcolm Soh is a Principal Researcher in Wildlife Management Research under the National Parks Board of Singapore. His current research focuses on the ecology and behavior of invasive bird commensals such as the feral pigeon for population management, and native bird species including a population assessment of the critically-endangered Straw-headed Bulbul.

THURS, 11 APRIL, 1230 | ECR PRESENTER

Bird feeding as a tool to reconnect urban children to nature

Johan Kjellberg Jensen

Lund University, Sweden | @JohankJensen1

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Urbanisation has led to people being further removed from nature in their everyday lives, something which has been argued to erode our connection to nature. Children with urban childhoods are believed to be particularly affected by this so-called extinction of experience. Bird feeding offers a potential avenue to reconnect and learn about local wildlife. Few studies, however, have investigated what factors modulate the potential of bird feeding as a remedy and whether urban children really are disconnected from nature. We performed an intervention-style study on 14 urban and rural schools across three city-regions to evaluate the effect of bird feeding on species knowledge, attitude to birds, and self-perceived well-being of children aged 10-11. We found that socioeconomic factors, not urbanisation, directly and indirectly modulate children's connection to nature. Moreover, local greenspace and individual class teachers are key for bird feeding to be a successful tool for reconnecting children to nature.

Johan Kjellberg Jensen recently defended his PhD thesis on Urban Ecology and is currently working as a researcher at Lund University. His research interest lies in human impacts on ecosystems, including trophic interactions, avian physiology, and human-nature relationship.

THURS, 11 APRIL, 1415

KEYNOTE

Evolutionary ecology of biological clocks: insights from urban birds



Barbara Tomotani

Arctic University of Norway (UiT), Norway | @babi_mt

The process of urbanization causes dramatic changes in the environment and it is suggested to put organisms under contrasting selective pressures when compared to forests. Due to these strong and distinct pressures, and sometimes a restricted gene flow, organisms in cities are known to undergo rapid phenotypic and genetic changes. An obvious property of the urban environments is the amount of artificial light at night (ALAN) that could impact daily and seasonal rhythms. Circadian biological clocks allow organisms to anticipate daily events and are ubiquitous in nature. The light-dark cycle is the most important cue to synchronize (entrain) the circadian clock and the presence of ALAN in cities could dampen the light-dark cycle, making the cues in the urban environment noisier and potentially less predictable. Thus cities are suggested to select organisms with faster and weaker clocks and are interesting natural laboratories to investigate the evolution of biological clocks. In my talk I will discuss possible phenotypical differences in biological clock properties of city and forest birds that may lead to differences in their activity patterns. Then, I will show the results of our large common garden study with Great Tits (*Parus major*) from urban and forest origins in which we tested

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whether clock differences could be genetic. Finally, I will show the results of an experiment designed to test if the clocks of city birds are differently affected by light at night when compared to forest birds.

Barbara Tomotani is a researcher at the Arctic University of Norway (UiT) and a guest researcher at the Netherlands Institute of Ecology (NIOO-KNAW). Barbara is interested in the evolution of clocks and calendars of wild organisms and also studies how daily and seasonal timing is affected by anthropogenic changes in the environment.

THURS, 11 APRIL, 1445 | ECR PRESENTER

The impacts of artificial light at night on the health of Great Tit nestlings

Rachel Reid (she/her)

University of Glasgow, UK | @rachelrosereid3

Animals inhabiting urban areas face many novel stressors including artificial light at night (ALAN). ALAN has been shown to disrupt circadian rhythms impacting sleep and changing activity patterns, yet little is known about the knock-on effects this could have for health. Health is multivariate therefore the assessment of multiple health traits could provide a fuller picture of health which is lacking in many studies. We have conducted an experiment exposing Great Tit nestlings to ALAN in the field. Biological samples were collected from the nestlings at the end of the experiment to assess various biomarkers of health including body mass, feather corticosterone levels, antioxidant levels, telomere length and oxidative stress. In our contribution we will present and discuss the results from the experiment. The results so far show that ALAN has no effect on Corticosterone levels or body mass but leads to higher plasma antioxidant levels in great tit nestlings.

Rachel Reid is a third year PhD student at the University of Glasgow, Scotland. The goal of Rachel's research is to understand the effects of urbanisation in particular the use of artificial light at night on the health and welfare of bird species.

THURS, 11 APRIL, 1500 | ECR PRESENTER

Impact of pollution on the cultural evolution of Great Tit (*Parus major*) songs

Marianne Sarfati (she/her)

Royal Holloway University of London, UK | @MarianneSarfati

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While previous studies have demonstrated that human noise pollution has shaped the structure of animal vocalisations, little is known about how different pollution sources might affect other aspects of vocal communication. We hypothesised that air pollution might impair cognitive development and thereby reduce the ability of birds to learn songs precisely. An expanding body of evidence documents the detrimental effects of air pollution on human cognitive development, while experimental studies suggest that bird song learning is particularly sensitive to developmental stress. But to the best of our knowledge, no previous study has investigated the effect of pollution on song learning precision. We recorded 400 Great Tits (*Parus major*) at 7 locations, characterized by varied levels of air and noise pollution. Given that great tits acquire their songs from nearby individuals, populations with high accuracy learners are expected to show lower diversity in song-types. Consequently, we quantified song sharing within each population. Then, by fitting our empirical findings to agent-based cultural evolutionary simulations using Approximate Bayesian Computation, we inferred mean learning accuracy at each location. Our analysis revealed a significant negative correlation between the concentration of NO₂, a proxy for air pollution, and learning accuracy, indicating that higher levels of air pollution corresponded to reduced learning precision. By combining a large-scale survey of animal culture with computational cultural evolutionary approaches, we made inferences for the first time about how pollution may be affecting song ontogeny. Bird song might provide a valuable model for the cognitive effects of pollution, and pollution might provide a way to test the developmental stress hypothesis in natural populations. Most importantly, it serves as a stark reminder that the impact of pollution extends beyond humans and might be disrupting learning and culture in other species.

Marianne Sarfati is a third year PhD student studying the effect of pollution on the cultural evolution of bird song at Royal Holloway University of London, supervised by Rob Lachlan and Elli Leadbeater. Her main interest is the evolution of acoustic communication and having a conservation component to her projects.

THURS, 11 APRIL, 1515 | ECR PRESENTER

Owls living in the city: Effect of urban cover, noise and light pollution on breeding Tawny Owls (*Strix aluco*) along a forest-urban gradient

Giuseppe Orlando

University of Glasgow, UK | @beppe_orlando96

Increasing noise and light pollution due to the urban sprawl constitute severe threats for biodiversity. These pollutants induce changes in activity patterns in avian communities by altering sensory systems, with consequences on behaviour and breeding performance. Despite the nocturnal environment has been profoundly changing, becoming brighter and noisier, the response of species adapted to nightlife rhythms remains poorly documented. Here, the Tawny Owl (*Strix aluco*), a

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nocturnal raptor widespread in European nightscapes, has been monitored along a forest-urban gradient to investigate how urbanisation and noise-light pollution affect its breeding. Since Tawny Owls hunt at night relying on acoustic cues, noise and artificial light are expected to affect hunting and foraging activities, thus impacting on breeding performance. Since research comparing breeding performance of rural and urban-dwelling raptors is still limited, this study contributes to fill this gap in avian urban ecology and provides new insights on owls' response to changing nightscapes.

Giuseppe Orlando is a PhD student at the University of Glasgow studying how birds are affected by urbanisation. He is particularly interested in investigating how nocturnal species cope with human-modified nightscapes. His research focus is how noise and light pollution affect the breeding and activity patterns of owls in urban ecosystems.



POSTER & X(TWITTER) | TUES, 9 APRIL, 1710 | ECR PRESENTER

Understanding the interplay between the gut microbiota, behaviour and urbanisation in wild birds

Vildan Acar

University of East Anglia, UK | @vildanhere

The gut microbiome substantially influences host biology, impacting behaviour and cognition, particularly in response to changes in the environment. With urbanisation posing unique opportunities and challenges for wild animals to respond, cities serve as ideal laboratories to explore host-gut microbiome interactions. This ongoing PhD study investigates how gut microbiome variation impacts individual behaviour and cognition in Great Tits, focusing on urbanisation's role in shaping gut microbiome diversity across urban and rural great tit populations. Integrating field studies with citizen-science-based monitoring using RFID technology for faecal samples and behaviour data collection coupled with advanced genetic analysis, our research employs a comprehensive and innovative approach. We anticipate illuminating the relatively unknown relationship between gut microbiome and behaviour in wild birds and gaining insight into avian adaptation within our rapidly urbanising world.

Vildan Acar, cultivated by a rural upbringing, pursued a Biology degree in Turkey with a conservation focus. Vildan's master's studies in phytoplankton communities expanded her skills, contributing to EU and government projects. Now, Vildan is excited to explore urban ecology in her Ph.D., following a lifelong passion for the natural world.

POSTER & X(TWITTER) | TUES, 9 APRIL, 1720 | ECR PRESENTER

Associations between urbanization and avian communities in the Afrotropics: evidence from taxonomic, functional and phylogenetic diversity

Adewale G. Awoyemi (he/him)

University of Granada, Spain | @AdewaleAwoyemi

This study investigates how urbanization affects bird taxonomic, functional and phylogenetic diversity in the rapidly urbanizing Nigeria. We counted birds at 400 points across eight paired urban and non-urban sites, vegetation zones (rainforest vs savannah) and seasons (dry vs wet). Of the total 237 bird species recorded, 65% were never encountered in urban areas, suggesting a negative effect of urbanization. Taxonomic diversity was significantly higher in non-urban than urban habitats. This contrasts with the result on functional and phylogenetic diversity, which was higher in the urban than

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non-urban habitat. These relationships were similar across seasons, but more intense in the rainforest, revealing that birds in this vegetation zone are more vulnerable to urbanization than their savannah counterparts. Furthermore, water cover significantly promoted all avian diversity metrics analyzed during the dry season independently of urbanization. In contrast, canopy and bush cover mediated the effects of urbanization on functional and phylogenetic diversity.

Adewale G. Awoyemi currently heads the Forest Center at the International Institute of Tropical Agriculture in Ibadan, Nigeria. He is simultaneously pursuing his PhD at the University of Granada (Spain) to investigate the impacts of urbanization on avian health and biodiversity in tropical environments.

X(TWITTER)-ONLY | WEDS, 10 APRIL, 0800 | ECR PRESENTER

Anthropogenic noise affects acoustic parameters of the territorial song of Western Australian magpie

Grace Blackburn (she/her)

The University of Western Australia | @G_Blackburn_

Anthropogenic noise has been shown to have negative effects on the distribution, behaviour, cognition and reproductive success of species worldwide. One of the most well researched effects of anthropogenic noise to date is on acoustic communication. Animals may adjust the rate, amplitude, duration, and/or frequency of their acoustic signals to better maintain communication when anthropogenic noise is present. We combined behavioural focals, amplitude measurements and audio recordings to investigate how female Western Australian Magpies (*Gymnorhina tibicen dorsalis*) alter the acoustic features of their territorial song when anthropogenic noise is present. Magpies reduced the rate at which they carolled when anthropogenic noise was present, and increased their peak frequency during anthropogenic noise, however they did not alter the amplitude, duration, or other frequency parameters of their carols in noise. Results from this study add to the growing body of literature documenting changes to the acoustic communication of wildlife during anthropogenic noise.

Grace Blackburn is a final year PhD candidate at the University of Western Australia working with wild Western Australian Magpies. Her research focuses on anthropogenic stressors affecting the behaviour and communication of urban living birds, using magpies as a model study system.

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X(TWITTER)-ONLY | TUES, 9 APRIL, 1650

The importance of public engagement at an urban bird reserve: The PODA reserve in Bulgaria

David Nicholas Clark

Independent (ex. Birmingham University, UK) | @daveclark77

PODA bird reserve in Bulgaria is very special. It is one of only two protected reserves in Bulgaria within a land area comparable to the size of England which has over 100 RSPB reserves. Proximate to Bulgaria's largest port Burgas, this marshland reserve, a post industrial site, butts up against the Black Sea and local lake areas. Administered by the Bulgarian Society for the Protection of Birds (BSPB) PODA's key function is to provide engagement with nature. Over 10,000 visitors visit the reserve per annum, the majority being local birding novices and over 50% being children whilst more experienced European and Bulgarian birders are attracted to its location along the Via Pontica (European Eastern Flyway) migratory route. This presentation will highlight the importance of this reserve to the local community and how this nature engagement is achieved.

David Nicholas Clark is an ornithologist with a Masters degree in Ornithology from Birmingham University, interested in the relationship between birds and humans.

X(TWITTER)-ONLY | TUES, 9 APRIL, 1830 | ECR PRESENTER

Improving understanding of mallard productivity, survival and movement

Hannah Coburn (she/her)

University of Essex, UK | @HannahECoburn

Despite being the most widespread and heavily researched duck species, we still have many gaps in our understanding of mallard ecology. The UK's winter and breeding mallard populations have declined in the past decade, but the drivers are unclear. Studies of this population are complicated by the mallard's partially migratory behaviour and release of game-farm mallards. Recent work indicates the current level of mallard harvest in the UK may be unsustainable, but further research is needed. We also lack up-to-date and UK-specific estimates of demographic parameters and migratory patterns. To address these questions, I will compile data from various sources into an integrated population model to assess the status of the south-east English mallard population and harvest sustainability in the region. Here, I present my initial analyses of survival and movement data and discuss how I will assess rural and urban mallard productivity using GSM tags and traditional survey techniques.

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Hannah Coburn is a first year PhD student at the University of Essex, where she is studying the productivity, survival and movement of mallards. She completed her undergraduate ecology degree at the University of Edinburgh, has ornithological experience in the voluntary and consultancy sectors, and is also a trainee ringer.

X(TWITTER)-ONLY | TUES, 9 APRIL, 1850 | ECR PRESENTER

Movements of the Northern Cardinal across urban green spaces during the winter season

Anne-Marie Cousineau (she/her)

McGill University, Canada | @anne_marie_bio

Urbanization is a significant challenge for birds, due to novel threats (i.e., window collisions) and habitat loss. Understanding bird movements across urban green spaces is crucial for biodiversity-friendly nature management. This study investigates how the Northern Cardinal (*Cardinalis cardinalis*) uses urban green spaces along an urbanization gradient during winter and how can that information guide our efforts to green cities. Cardinals will be banded, radio-tagged and translocated to sites with varying urbanization levels around the island of Montreal and tracked using hand-held receivers. The study will reveal the fine-scale movements of the Northern Cardinal in urban areas and how they're utilizing urban green spaces. I hypothesize that cardinals released in heavily urbanized areas will travel further and use multiple smaller urban green spaces, due to food scarcity, increased predation risk and habitat fragmentation. The findings will offer insights for creating urban green spaces benefiting both the birds and the community.

Anne-Marie Cousineau completed her BSc degree at Université de Montréal and is now pursuing a MSc at McGill University. She has a strong interest in urban ecology and has always been fascinated by birds. Her research focuses on the movement patterns of the Northern Cardinal across urban green spaces in Montreal.

X(TWITTER)-ONLY | TUES, 9 APRIL, 1840

House Sparrows and urban density in Ottawa, Canada

Anthony Gaston (he/him)

Tony Gaston Consulting, Canada | @knomealone

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The House Sparrow is an introduced alien in North America and, as such receives minimal attention from bird census projects in Canada. In Ottawa it exists close to the limit of survivable conditions. In winter, they spend the day in discrete and persistent aggregations of 10-100 birds, based in dense cover and usually close to a food source. This makes urban census fairly simple. My presentation looks at the relationship between human density and sparrow density, based on four winters of observations. Generally, sparrows are absent from prosperous suburbs with large gardens and reach their highest density in the downtown core. I make some suggestions for why this should be the case.

Tony Gaston, a retired Research Scientist with the Canadian Wildlife Service, worked in the Eastern Arctic and Haida Gwaii during 1975-2014. He has written >200 papers and monographs on Brunnich's Guillemot (1981), Ancient Murrelet (1992) and the Alcidae (1998), and edited Birds of Nunavut (2018).

X(TWITTER)-ONLY | TUES, 9 APRIL, 1620

Tiny Forest: exploring potential as living labs for urban bird research

Daniel Hayhow (he/him/his)

Earthwatch Europe, UK | @DBHayhow

Understanding the role urban forests play in supporting urban bird populations will be essential to optimise the design, management and maintenance of trees and forests in the greenspaces in our towns and cities. Miyawaki forests are small urban forests (200m²) planted with native trees and shrubs creating patches of dense forest allowed to develop naturally. Starting in 2020, the Tiny Forest network now includes over 200 sites in greenspaces across the UK which provide much needed 'wild' habitats for biodiversity. Tiny Forests function as living labs with current citizen science and biodiversity research focussed on pollinators and ground dwelling invertebrates. The role of these forests in provision of shelter, foraging and nesting sites for urban birds however is a research area we would like to pursue particularly to understand the impact of scale and connectivity. Here we present a summary of the project, the sites and the research potential and welcome expressions of interest for collaboration.

Daniel Hayhow is Earthwatch Europe's Senior Research Lead in Urban Biodiversity. He provides scientific leadership on research and citizen-science around urban greenspace projects. Daniel previously worked at the RSPB Centre for Conservation Science, leading on national scarce and rare breeding bird surveys and the 2016 and 2019 UK State of Nature reports.

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X(TWITTER)-ONLY | TUES, 9 APRIL, 1700

Avian fauna of Dhaka city, their habitats, occurrence, and conservation

Sharif Hossain Sourav

German Aerospace Center (DLR) | @sourav_nature

Bangladesh needs to catch up in urban ornithological research, and there is a vast knowledge gap on urban bird species, their occurrence, habitat, and conservation. This pioneering study analyzed citizen science data from eBird, field observation, and published literature data. The study revealed 248 bird species. The city supports 141 residents and 107 migratory species. Three globally threatened, seven globally near-threatened, four nationally threatened, and six nationally near-threatened species were found. The highest species density (1.8) has been shown in the National Botanical Garden. Relative abundance of occurrence indicated that 215 species were rare in the city. A total of 75 plant species providing bird diets were recorded, of which 48 are native species. Preparing an urban bird conservation action plan, regular monitoring and awareness, creating bird and wildlife-friendly parks and grassland, protecting the city's outskirts habitat, restoring wetlands, and implementing laws are prerequisites for bird conservation in Dhaka city.

Sharif Hossain Sourav is an Ornithologist and Botanist with more than ten years of experience in bird and plant conservation and research. Sharif Hossain Sourav is working as an Ecologist with the German Aerospace Center (DLR) and before that, worked for LBV, Senckenberg Natural History Museum, CEGIS, IUCN and NACOM in Bangladesh.

X(TWITTER)-ONLY | WEDS, 10 APRIL, 0820

Citizen science data reveal distinct bird-window collision patterns in a subtropical Asian island

Chi-Heng Hsieh (she/her/hers)

National Taiwan University, Taiwan | @ginny_r10b44004

Bird-window collisions are a major source of human-caused direct avian mortality, especially under increasing urbanization. Although this issue has been studied for decades, most research was done in North America, while subtropical and tropical regions are long neglected. Using a subtropical Asian island – Taiwan as a case study, we collected nationwide decadal collision data via citizen science, which overcomes the environmental constraints on conducting conventional carcass surveys under hot and humid conditions and allows us to gather abundant collision data in a relatively short period of time. Over 3,500 collision cases revealed several first-documented super colliders in families

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distinct from those reported in temperate regions. The data also showed high numbers of collisions for an urban-dwelling raptor Crested Goshawk (*Accipiter trivirgatus*). Our study highlights the importance of collision studies in underrepresented regions to guide conservation actions and develop strategies for mitigating bird-window collisions in these urban areas.

Chi-Heng Hsieh's research interests focus on addressing urban ornithology questions via museum collections and citizen science. She is a member of the group initiating bird-window collision research in Taiwan in collaboration with Raptor Research Group of Taiwan (RRGT). Her goal is to document the patterns in bird-window collisions in subtropical Asia.

X(TWITTER)-ONLY | WEDS, 10 APRIL, 0810 | ECR PRESENTER

Green spaces and water body support bird species diversity across urban parks in Kuala Lumpur, Malaysia

Fudzla Zulfa Khiruddin (she/her)

The National University of Malaysia | @fudzulfa

Urbanisation growth is very rapid worldwide, where more than half of the population live in urban areas. The development of infrastructures to comply with dense population in cities has threatened the biodiversity in urban areas. Bird communities are important bioindicators for a good ecosystem because they are very sensitive to any change in the environment. However, their numbers have decreased as more of native vegetations were destroyed. Urban researchers have been focusing on the landscape matrix in urban parks as a way to conserve bird diversity in urban areas. However, studies relating to the influence of urban park attributes to the bird diversity are still scarce. In this study, we identify the landscape attributes that influence bird diversity in urban parks. Five landscape attributes that could potentially affect the avian diversity in urban parks have been shortlisted, which are green area, grey area, water body and percentage of green area. We have recorded a total of 537 individuals from 46 bird species and 24 families from three urban parks (Taman Tasik Permaisuri, Taman Pudu Ulu and Taman Datuk Keramat). The multiple regression found that green spaces and water bodies attributes play important roles that influence avian species richness and abundance in urban parks of Kuala Lumpur. We also proved that the landscape attributes of urban park are more important that its size in increasing bird diversity. Further studies can be done on more landscape attributes that can contribute to a better planning and development of functional urban parks for urban conservation.

Fudzla Zulfa Khiruddin is an assistant researcher from The National University of Malaysia, Malaysia, focusing on the study of urban birds. Her current studies are mainly ecological, on bird diversity in urban parks, habitat quality and quality, and landscape ecology. With a background in

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microbiology, she is also involved in molecular work to assess associated gut microbiome of selected bird species. She is currently in completing her Master's degree as a research student in Zoology.

POSTER & X(TWITTER) | TUES, 9 APRIL, 1750 | ECR PRESENTER

***Chlamydia psittaci* in the urban environment: insights from Antwerp's pigeons**

Valentin Adrian Kiss (he/him)

University of Antwerp, Belgium | @valentinkiss07

Given the inexorable rate of urbanization, we must urgently recognize cities as environments that provide unique opportunities for wildlife. However, animals that survive and thrive in cities must contend with the spatio-temporal variability, novelty, and complexity of urban landscapes, which, among other things, also creates conditions for disease transmission. We used *Chlamydia psittaci* and its host, the feral pigeon, as a model system to explore the link between urbanization and disease dynamics. We collected pharyngeal and cloacal samples from pigeons in Antwerp (Belgium) and screened them using standard PCR. To study the spatiotemporal variation at the genetic level, the positive samples underwent sequencing and cluster analysis. The prevalence rate of *Chlamydia psittaci* in Antwerp currently stands at about 5.38%, without any obvious spatial clustering. Ultimately, this study will enhance our understanding of the interplay between cities and synanthropic species, shedding light on how these factors shape disease dynamics in urban wildlife.

Valentin Adrian Kiss is a PhD candidate at the University of Antwerp, studying the ecology of disease within the Behavioral Ecology and Ecophysiology group and the Evolutionary Ecology group. His research investigates the relationships between the urban environment, animal behavior, and the transmission of *Chlamydia psittaci* in feral pigeon populations.

POSTER & X(TWITTER) | TUES, 9 APRIL, 1740

Behavioural responses of Blue Tits to novel sound / novel object in urban vs rural habitat

Julia Mackenzie (she/her)

Anglia Ruskin University, UK | @J_Mackenzie_23

This study aimed to explore behavioural responses to novel objects and novel sounds in wild Eurasian Blue Tits (*Cyanistes caeruleus*) at urban (parkland in central city) and rural (wood in village) sites during the breeding season. We expected there may be group-level differences in behaviour

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relating to site (urban, rural) and condition (control, novel object, novel sound). We also expected that parent neophobia may influence breeding efforts and there may be individual-level consistency in behaviour over time and context. Data was collected on 15 Blue Tit nest boxes at the urban site and 14 Blue Tit nest boxes at the rural site, from April-May 2023. Nest monitoring was conducted from April to June 2023. Results from the analysis of the behavioural responses are presented and include a discussion of the effect of site (urban vs rural) and novel stimulus type (object vs sound) on Blue Tit neophobia.

Julia Mackenzie is the lead investigator into long-term research on the breeding success of Blue Tits and Great Tits in marginal habitats. She is particularly interested in assessing the effect urbanisation - which can cause drastic and rapid change to the environment - has on the behavioural responses of birds.

X(TWITTER)-ONLY | TUES, 9 APRIL, 1640 | ECR PRESENTER

Town birds in Tenerife: ecology of the urban-rural gradient

Alex Nicol-Harper (she/her)

Wildfowl & Wetlands Trust & University of Oxford, UK | @alexnicolharper

Urban birds have been little studied in the Canary Islands, despite relatively high levels of endemism and threat. I built on Palomino & Carrascal's (2005) paper by extending the focus from cities out along the urban-rural gradient, considering changes in avifaunal communities across different land uses. Five-minute point counts with simultaneous 25-metre and unlimited distance radii were conducted at ~200m-intervals along four ~4km transects radiating from the centre of La Laguna, Tenerife, covering urban, suburban, agricultural and village land-use categorisations. Urban sites had fewer individuals and species; the number of individuals being negatively correlated with pedestrian traffic (somewhat compensated by the presence of tall trees in busy areas), while species richness was negatively correlated with built cover and vehicular traffic. Tenerifean birds are seemingly better able to adapt to urbanisation than generally suggested by studies elsewhere, with 47% of the study species being 'urban exploiters' and 12% 'suburban adapters'.

Alex Nicol-Harper is a Principal Research Officer in the Wetland Bioscience team at WWT, focusing on species recovery. Her PhD used population models to investigate intermittent breeding in Common Eider and Black-browed Albatross. Urban birds were the focus of her Masters dissertation – now 8 years ago!

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Urban tolerance does not protect against population decline in North American birds

Julianna Azaria Petrenko (she/her)

Queen's University, Canada | @JulAzariaPet

Population declines of organisms are widespread and severe, but some species' populations have remained stable, or even increased. The reasons some species are less vulnerable to population decline than others are not well understood. Species that tolerate urban environments often have a broader environmental tolerance, which, along with their ability to tolerate one of the most human-modified habitats, like cities, might allow them to persist against diverse anthropogenic challenges. Here, we examined the relationship between urban tolerance and annual population trajectories for 397 North American bird species. Surprisingly, we found that urban tolerance was unrelated to species' population trajectories. The lack of a relationship between urban tolerance and population trajectories may reflect other factors driving population declines independent of urban tolerance, challenges that are amplified in cities, and other human impacts that benefit some urban-avoidant species. Overall, our results illustrate urban tolerance does not protect species against population decline.

Julianna Azaria Petrenko is currently pursuing a Master's degree in Dr. Fran Bonier's Lab at Queen's University in Kingston, Ontario, Canada. She is particularly interested in how organisms cope with anthropogenic effects, currently investigating the challenges and advantages of urbanization.

X(TWITTER)-ONLY | WEDS, 10 APRIL, 0850 | ECR PRESENTER

Not in the countryside please! Investigating UK residents' perceptions of the introduced Ring-necked Parakeet

Alessandro Pirzio Biroli

GHD, UK | @apb_birds

Wildlife management propositions can generate social conflict when stakeholder perceptions of the target species are not considered. Introduced Ring-necked Parakeets (RNP) have been added to the UK's 'general licence' of birds that can be killed to prevent economic damage. We aimed to understand perceptions of RNPs to inform mitigation actions for potential future conflict over RNP management. 90.2% of respondents were aware of the RNP. 45.9% of respondents held negative opinions. 64.7% of respondents were against the RNP in rural areas, suggesting landscape contexts

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influence attitudes. Preference for the RNP was low in local neighbourhoods (7.80%) yet the species was considered aesthetically pleasing (83.0%), indicating that there are nuanced views on the RNP that separate appearance from impacts. Our findings suggest that the RNP presents a complex socio-environmental challenge. We recommend that wildlife managers utilise our findings towards the success of any proposed management initiatives under the general licence.

Alessandro Pirzio Biroli is a Senior Advisor at GHD's Insights and Analytics team. He is passionate about ornithology, and studied Biology/Ecology at Oxford and ICL. He also worked at the Bird Conservancy of the Rockies (USA). He is interested in urban ecology and applying data science towards pragmatic avian conservation.

X(TWITTER)-ONLY | WEDS, 10 APRIL, 0830 | ECR PRESENTER

Study on relationship between various habitat and feeding guilds of birds in and around Rajkot, Gujarat

Bhargavi L. Thaker (she/her)

Christ College, India | @ThakerBhar66373

The goal of the current study was to document the variety of bird life in and around Rajkot city area, Gujarat, India. For the first time ever, research was conducted from June 2018 to December 2020 at the Rajkot to examine the population structure and habitat utilisation of birds. In order to understand relationship between feeding guilds and habitat in birds, regular sampling was carried out in 20 sample sites. Eight different foraging guilds were identified among the birds. There are 82 bird species in all, classified into 20 orders, 44 families. The Passeriformes order has the highest species richness. The omnivorous guild is the most abundant. The strongest association was found between the piscivorous guild and the wetland habitat. The study's findings provide baseline information on the number of birds and their habitat usage in and around Rajkot city area.

Bhargavi L. Thaker completed her Master in Philosophy in Zoology from India. She is pursuing her Doctoral study in ornithology from Rajkot, Gujarat. Alongside, she is working as a Laboratory Assistant in Christ College, Rajkot, Gujarat. She is interested to know the latest research and techniques in ornithology.

X(TWITTER)-ONLY | TUES, 9 APRIL, 1630

Assessing the bird feeding guild patterns in urban areas of Maroua, Cameroon

**Jean Tonleu**

University of Dschang, Camaroon | @TonleuSir

The adaptation of birds to a changing physical environment can be well understood by analysing their habitat preferences and foraging dynamics in an urban area of a Sahelian ecosystem. In the present study, we investigated the variations in species richness and abundance of birds feeding guilds in the urban ecosystem. Herein, birds were counted in agroforestry systems, residential areas and annual crop fields found in the urbanisation gradient of the urban ecosystem of Maroua. Results showed that species richness and abundance of carnivores, frugivores, granivores and omnivores were significantly affected by habitat type. Further findings indicate that the species richness and abundance of insectivores and the abundance of granivores were significantly affected by the urbanisation gradient of the urban ecosystem. These results thus provide the background for a long-term analysis of the relationship between birds and their habitats and the dynamics of their foraging behaviour in the Sahelian ecosystem.

Jean Tonleu has a Ph. D. in wildlife ecology and conservation and teaches at the Universities of Dschang and Maroua in Cameroon. Jean's scientific work focuses on the impact of land use systems on bird and woody plant diversity across gradients of natural ecosystem degradation.

X(TWITTER)-ONLY | WEDS, 10 APRIL, 0840 | ECR PRESENTER

Urbanisation and personality traits: a preliminary study on risk-taking behaviour in female Jackdaws**Margaux Vanhussel**

University of Liège, Belgium | @MargauxVhl

As urbanisation decreases the availability of rural environments for many species, birds such as the Jackdaw (*Coloeus monedula*) have experienced a decrease in nesting site availability. This has potentially led to increased competition among populations within rural colonies, resulting in individuals dispersing towards more urban sites. However, it is important to consider the potential influence of personality traits on this dispersion. In order to investigate the potential correlation between personality traits, such as boldness, and the level of urbanisation, I measured the time taken by female Jackdaws to return to their nest after being disturbed by a human. This time served as a proxy for quantifying risk-taking behaviour, which is related to boldness. Although limited by a small sample size, this study provides a new method for testing the potential impact of urbanisation on individuals' coping mechanisms in response to a changing environment, as well as their dispersal strategy based on their personality.

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Margaux Vanhussel graduated with a Master's in organism biology and ecology, and is now a first year PhD student/assistant at Uliège University, in close collaboration with the Cornish Jackdaw Project led by Pr. Alex Thornton from Exeter University, where Margaux does Jackdaw fieldwork.

POSTER & X(TWITTER) | TUES, 9 APRIL, 1820

Birds of Prague 1800-2020: birds in the city and a story of a hero

Petr Voříšek

Czech Society for Ornithology/European Bird Census Council | @VorisekP

In 1944, a book *Birds of Prague* was published. According to the last will of its author, Veleslav Wahl - a hero of anti-nazi and anti-communist resistance, who was executed by the communist regime in 1950 - we publish an update of his book. The new book compares avifauna of Prague in the past with recent situation and based on new explorations of archives, also describes resistance activities of V. Wahl. Since 1800, 285 species were recorded in Prague, 182 in 1936–1945 and 248 species in 2011–2020. Four species went locally extinct since 1936–45 while 70 colonised the city. Some species seem to benefit from urban environment or management of habitats in the city. Less intensive management of waterbodies, overall increase in a surface of water in the city or increase of forested areas and parks as well as better management of green spaces play a role.

Petr Voříšek was born in 1967, studied zoology at Charles University in Prague and has spent most of his professional life in the Czech Society for Ornithology. Since the early 2000s, Petr has been active in coordinating bird monitoring in Europe under the umbrella of the European Bird Census Council (EBCC).

POSTER & X(TWITTER) | TUES, 9 APRIL, 1730

Seasonal patterns of occurrence and abundance of Black-winged Lapwings in a peri-urban area

Philip Whittington

East London Museum, South Africa | @IBIS_journal

The Black-winged Lapwing *Vanellus melanopterus* occurs along the coastal belt of the Eastern Cape of South Africa. Favoured habitats include mown grass areas, such as that found adjacent to the Prince George Grand Prix Circuit on the west side of the city of East London. Numbers of birds on the

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circuit's grass verges were counted twice a month between June 2011 and mid-March 2020 and from June 2020 until the present, from a slow-moving vehicle, and any breeding behaviour noted. Peak numbers were recorded between May and July, while birds were sometimes absent or in low numbers during the Austral spring. Out of 279 surveys to date, a zero count was recorded 68 times, although on 18 of these occasions, birds were present in adjacent areas or in the nearby industrial development zone. Breeding took place during the spring, the first chicks usually appearing in mid to late September.

Philip Whittington was born in Harrow, UK and has a BSc in Biological Sciences from the University of London. Philip was an ornithologist at the British Trust for Ornithology, 1981-1990, studied coastal birds in South Africa, 1995-2016, and received a PhD from the University of Cape Town in 2002. He is currently an ornithologist at the East London Museum, South Africa.



DELEGATES

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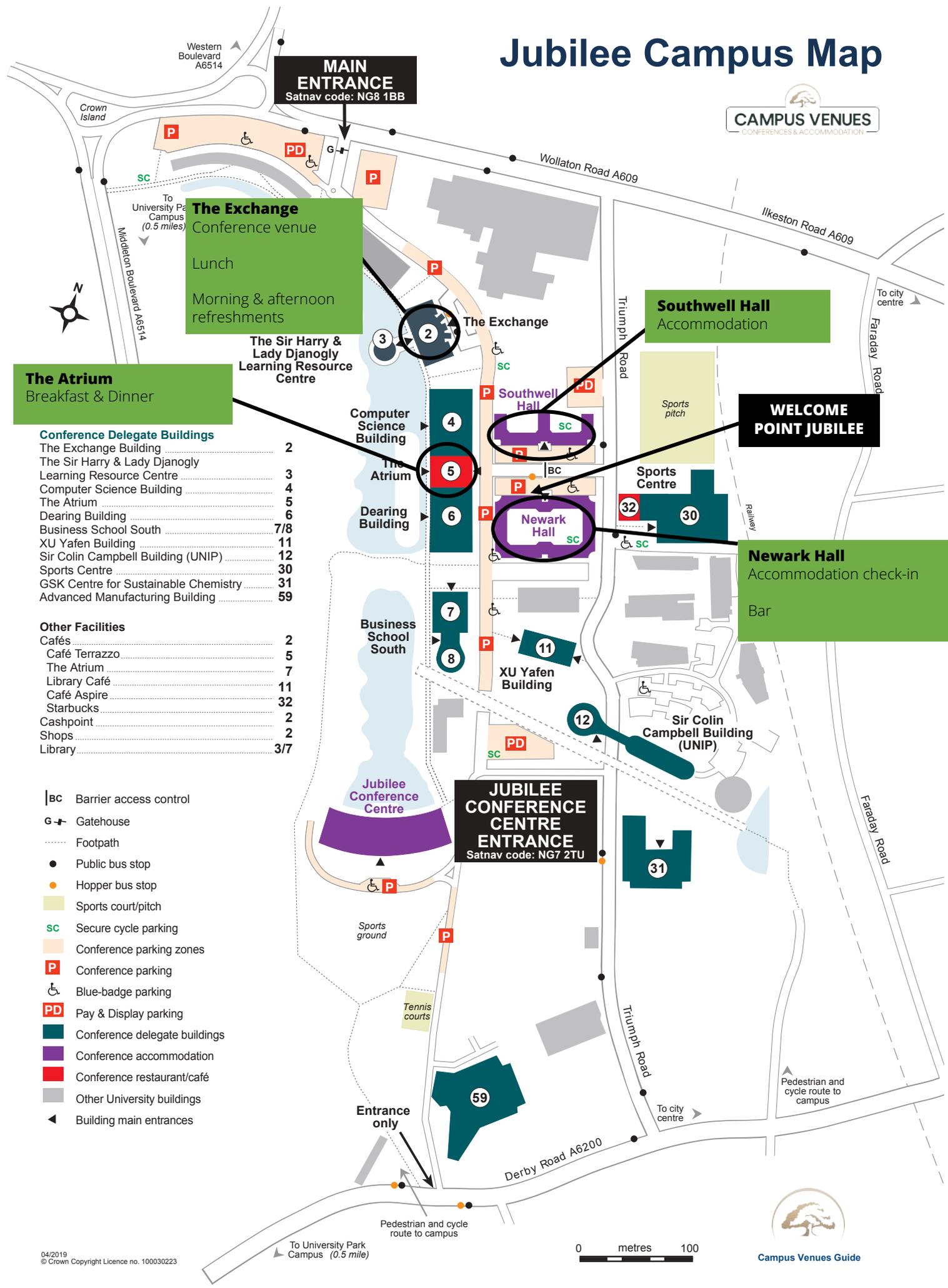
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Zielonka, Natalia	Royal Society for the Protection of Birds, UK BOU Social Media Support Officer BOU2024 conference support	@Nat_B_Zielonka

Jubilee Campus Map



MAIN ENTRANCE
Satnav code: NG8 1BB

The Exchange
Conference venue
Lunch
Morning & afternoon refreshments

Southwell Hall
Accommodation

WELCOME POINT JUBILEE

Newark Hall
Accommodation check-in
Bar

JUBILEE CONFERENCE CENTRE ENTRANCE
Satnav code: NG7 2TU

The Atrium
Breakfast & Dinner

Conference Delegate Buildings

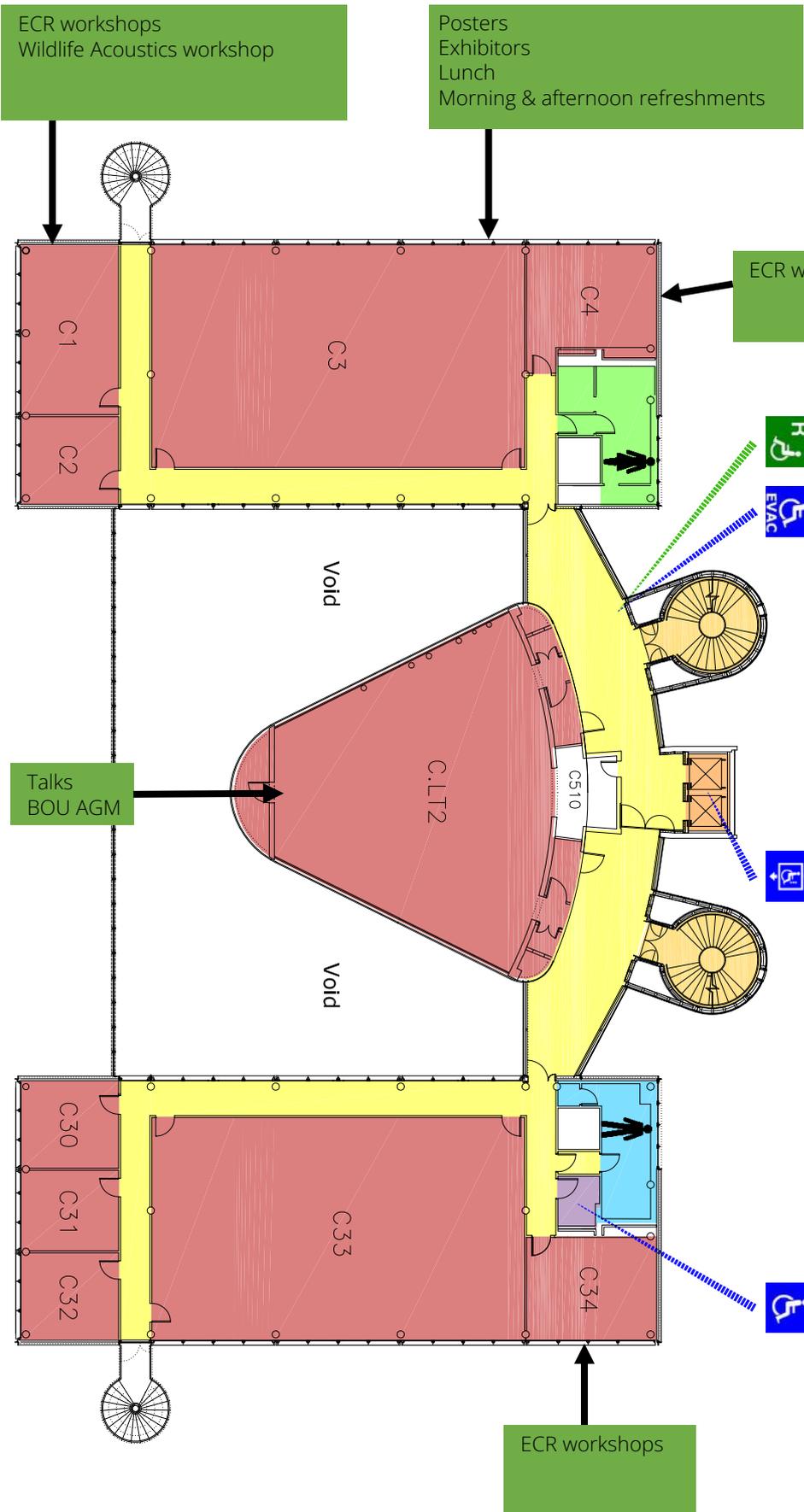
The Exchange Building	2
The Sir Harry & Lady Djanogly Learning Resource Centre	3
Computer Science Building	4
The Atrium	5
Dearing Building	6
Business School South	7/8
XU Yafen Building	11
Sir Colin Campbell Building (UNIP)	12
Sports Centre	30
GSK Centre for Sustainable Chemistry	31
Advanced Manufacturing Building	59

Other Facilities

Cafés	2
Café Terrazzo	5
The Atrium	7
Library Café	11
Café Aspire	32
Starbucks	2
Cashpoint	2
Shops	2
Library	3/7

- |BC Barrier access control
- G Gatehouse
- Footpath
- Public bus stop
- Hopper bus stop
- Sports court/pitch
- SC Secure cycle parking
- P Conference parking zones
- P Conference parking
- ♿ Blue-badge parking
- PD Pay & Display parking
- Conference delegate buildings
- Conference accommodation
- Conference restaurant/café
- Other University buildings
- ◀ Building main entrances

The Exchange - C Floor Plan



Key

-  Designated Badge-Holder Parking
-  Access Ramp
-  Automatic Doors
-  Accessible Lift
-  Entrance
-  Accessible Entrance
-  Evacuation Chair
-  Emergency Refuge
-  Toilet (Female / Male)
-  Accessible Toilet
-  Reception
-  Refractory/Cafe
-  Central Timetabled Room
-  Circulation
-  Stairs
-  Lift
-  Fire Assembly Point