

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Modelling how to mitigate bird population declines in the UK through landscape-scale environmental management

Ailidh Barnes

Bournemouth University, C232 Christchurch House, Talbot Campus, Fern Barrow, Poole BH12 5BB, UK

abarnes@bournemouth.ac.uk  @ailidhbarnes

Global biodiversity is declining rapidly despite efforts to halt the decline. UK birds have been in decline since the 1960s with farmland birds being the most affected. Birds are effective indicators of ecosystem health since they inhabit almost every habitat on Earth and are ubiquitous. Avian habitat selection is ultimately dependent on the habitat, therefore habitat diversity effects avian diversity attesting that birds are a vital resource to conservationists. Not only are the birds influenced directly by the habitat, they are also indirectly affected by the landscape surrounding their preferred habitat indicating the need for local and landscape level studies and land management schemes. This study will take a multi-scale approach to examine the consequences of habitat and landscape changes on bird populations in two contrasting and mixed land-use sites, New Forest and Cambridgeshire. The New Forest is a National Park consisting of a mixed woodland and heathland landscape. The woodlands are a mix of broadleaved Beech (*Fagus sylvatica*) and Oak (*Quercus robur*), interspersed with conifer plantations and stretches of heathland areas with encroaching scrubland from the surrounding wooded areas. Cambridgeshire, on the other hand, is an agricultural landscape of mainly arable farmland with woodland patches and hedgerows. The woodlands consist of mostly Ash, Oak and Field maple with Blackthorn and Hawthorn forming the hedgerows. Recently acquired, high resolution airborne remote sensing datasets (LiDAR) will be used to develop measures that quantify structure, composition and condition of the two study landscapes. Bird community composition and diversity will be assessed in relation to remotely sensed metrics to determine the effects of landscape characteristics on bird community dynamics. At the landscape scale, bird distribution and abundance will be assessed in relation to landscape structure and composition and scenarios of how changes in land-use affect bird population persistence will be tested. The overall aim of this study is to provide realistic measures to develop sustainable landscapes in order to conserve avian diversity.

Ailidh Barnes is in her final year of her PhD studying bird communities in various habitats in two contrasting landscapes. Her aim is to utilise habitat structure and composition in spatial modelling to evaluate habitats and provide sustainable management strategies in order to conserve bird species communities.

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Frontiers in invasive species distribution modelling: incorporating human-associations to improve risks predictions

Laura Cardador^{1,*} & Tim Blackburn¹

¹Centre for Biodiversity and Environment Research, Department of Genetics, Evolution, and Environment, University College London, London WC1E 6BT, UK

* l.cardador@ucl.ac.uk

Biological invasions represent a major component of global change through their impacts on biodiversity, ecosystems and societies. Awareness of these impacts and the critical importance of evidence-based decision making have led to a persistent effort to understand the factors driving invasion success so as to be able to predict invasion outcomes. To this end, a range of modelling tools has been developed. Among them, species distribution models (SDMs) -phenomenological models that statistically relate observed species occurrences to environmental variables- play a critical role in invasion risk assessments. These models rely on ecological niche theory, which predicts that for recent events such as biological invasions, conservatism of the climatic niche is expected. However, recent studies showed that this approach could be hampered by apparent niche shifts in invasive ranges. Mismatches between native and invasive distributions derived from SDMs are often interpreted as species adaptations in response to selection pressures in novel environments. However, methodological drawbacks of previous approaches fuel doubts about the biological meaning of these findings. Among them, the heavy reliance of SDMs on macroclimatic variables might fail to account for other relevant factors, thus leading to poor predictions. In this study, we use an interdisciplinary approach combining occurrence, environmental and phylogenetic data to assess whether association with human-modified habitats in the native range, a species trait strongly associated with invasion success, might modify the distributional limits set by climate in current avian invasions and whether the role of human-associations in shaping species distributions in native ranges varies across the phylogeny. Our analyses are based on 971 bird species that have been introduced into the wild worldwide.

Laura Cardador is a postdoctoral researcher with a main research focus on macroecology and conservation. She is particularly interested in the ecological factors affecting species distributions and the application of modelling tools to guide relevant conservation and management decision making. Currently she is mostly focusing on biological invasions.

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Camilo Carneiro^{1,2*}, Tómas G. Gunnarsson² & José A. Alves^{1,2}

¹ Dep. Biology & CESAM, University of Aveiro, Campus de Santiago, 3810-193 Aveiro, Portugal

² South Iceland Research Centre, University of Iceland, Lindarbraut 4, IS-840 Laugarvatn, Iceland

* camilofcarneiro@gmail.com  @Camilo_Carneiro

Wader species breeding at high latitudes in the northern hemisphere typically winter in wetland areas spread along continental coasts in temperate and tropical regions, spanning large latitudinal ranges. Given the large scale variation in local weather, quality and quantity of food resources and distance to the breeding area, the costs and benefits of wintering at a given site are likely to differ. In addition, the conditions experienced during winter will not only affect present individual state but can also affect subsequent stages of the annual cycle, in particular spring migration. Therefore, depending on the winter site and migratory strategy undertaken, individuals will require different amounts of energy to survive throughout the season and fuel the subsequent spring migration.

The Icelandic Whimbrel (*Numenius phaeopus islandicus*) breeds mostly in Iceland and winters from Iberia to Benin. Their migratory strategies have recently been identified, with individuals undertaking one of two strategies during spring migration: a direct flight to Iceland or two flights with one stopover (usually in Ireland or Britain). In order to assess the costs and benefits Whimbrels experience during winter and their effect on spring migration, we (1) present the energetic balance experienced at three distinct wintering sites – Tagus estuary (Portugal, 39°N), Banc d'Arguin (Mauritania, 20°N) and Bijagós Archipelago (Guinea-Bissau, 11°N) – and (2) model spring migration costs for each migratory strategy.

Camilo Carneiro is a PhD student at the Universities of Aveiro and Iceland exploring the implications of long distance migratory strategies and variation of wintering habitat use on individual fitness. He investigates these links on Icelandic Whimbrels, developing fieldwork in Iceland and West Africa and using several individual tracking techniques (colour-rings, stable isotopes and geolocators).

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Physiological and parasitological effects of stress on Rufous-collared Sparrow *Zonotrichia capensis* on an urban-rural matrix in the high tropical Andes

Izan Chalen¹ & Diego F. Cisneros-Heredia^{1,2}

¹ Universidad San Francisco de Quito USFQ, Colegio de Ciencias Biológicas & Ambientales, Laboratorio de Zoología Terrestre, Quito 170901, Ecuador

² King's College London, Department of Geography, London, UK

* ichalenp@usfq.edu.ec  @izancp

Urbanisation has dramatically changed landscapes, representing a novel challenge to many species whose habitats have been affected by this process. Some species appear to adapt better than others to urban environments. However, in some cases, even when population data shows good levels of adaptation, physiological data shows opposite patterns and species are under greater level of stress than in natural habitats. Stress includes several factors that can provide information about how species are adapting to novel environments, providing very informative data that allows researchers to make predictions about evolution, population ecology, and long-term conservation. In this study, we analysed cortisone levels and parasite prevalence of four populations of Rufous-collared Sparrow *Zonotrichia capensis* in the urban-suburban-rural matrix, including small gardens embedded in the urban matrix, medium-sized green spaces in the suburban matrix, large parks in suburban areas, and natural areas surrounded by agricultural habitats. Urban areas were established over 30 years ago, while urbanisation growth has increased in the semiurban areas over the last 20 years. *Zonotrichia capensis* is a common bird in the Neotropics. Our results suggest that this species is well adapted to urban contexts, however individuals present some differences over their rural counterparts. Due to the possibility of zoonosis, parasitic data may be a concern regarding public health and urban planning.

Izan Chalen is student of Biology at Universidad San Francisco de Quito USFQ, Ecuador, with major interests in physiology and molecular biology.

Diego F. Cisneros-Heredia is full-time professor and researcher, director of Laboratory of Terrestrial Zoology, Universidad San Francisco de Quito USFQ, Ecuador.

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Intake rates of wintering shorebirds along the East-Atlantic Flyway – are northern winterers always on top?

Ana P. Coelho^{1*} & José A. Alves^{1,2}

¹ Dep. Biology & CESAM, University of Aveiro, Campus de Santiago, 3810-193 Aveiro, Portugal

² South Iceland Research Centre, University of Iceland, Lindarbraut 4, IS-840 Laugarvatn, Iceland

* anapcoelho@gmail.com

Throughout winter birds must find enough resources to fulfil their energetic requirements. For migratory birds, selecting a wintering location is extremely important as conditions experienced in winter can have both immediate and future consequences, through carry-over effects.

Many migratory shorebirds winter along the coastal fringes of continental land-masses thus occupying wide latitudinal ranges which can vary greatly in environmental conditions, e.g. habitats, prey availability and climate. Local conditions may be traded-off with other factors such as migration distance and for shorebirds wintering in the northern hemisphere fuelling rates in spring are known to decrease with latitude. However, flyway wide variation in winter feeding rates remains largely unexplored, potentially due to the logistic challenges of covering such large ranges and in sampling specific areas of difficult access. Moreover, while some populations are stable or increasing in some areas of the winter range (e.g. Europe), their conspecifics wintering further south (e.g. West Africa) are currently declining.

In order to understand the potential trade-offs experienced by shorebirds wintering along the East-Atlantic Flyway we collate intake rate data of several species and explore the drivers of such variation across sites. In addition, we quantify intake rates at the southernmost major wintering site on this flyway, the Bijagós archipelago in Guinea-Bissau, a mostly unstudied site that harbours large numbers of shorebirds in winter, and compare those to intake rates in more northerly sites.

Understanding shorebird winter feeding ecology and intake rate variation throughout the flyway will help assessing the costs and benefits associated with their winter distributions and contribute towards unravelling potential causes of varying population trends between different wintering areas.

Ana Coelho is a conservation ecologist interested in understanding how human-induced global changes affect biodiversity. Her master's degree explored how anthropogenic land-use changes affect the service of avian seed dispersal in a tropical island, and her current PhD focuses on understanding how migratory shorebird populations can be affected by environmental changes in the tropics, particularly in the Bijagós archipelago.

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Supporting the atlas: using the data behind bird atlas projects to produce estimates of habitat specific densities

Matthew Geary & Achaz von Hardenberg

Conservation Biology Research Group, Department of Biological Sciences, University of Chester, Chester, United Kingdom

*M.Geary@Chester.ac.uk  @MattGeary

In order to make accurate inferences about species density and distributions, detailed survey data is required, in particular because, for most species, detection probability is likely to be imperfect. However, this kind of data is rarely available for most species due to resource constraints which limit spatial coverage or data quality. Citizen-science surveys, on the other hand, have the potential to produce large volumes of data which however is usually not very information-rich. Bird atlases are typically produced combining data from different sources which can span this spectrum of data. Using recently developed statistical approaches to integrate estimates from multiple data sources we can exploit the different kinds of data used to build bird atlases to provide insights into population density and species-habitat relationships. We use data provided by the North Wales Breeding Bird Atlas 2008-2012 which consists of at least two visits to tetrads to record species presence, data from breeding bird surveys and incidental records from recorders. We first used n-mixture models to predict density for a sample of the data for which repeated observations and count data in the same sites were available for a variety of bird species, using habitat covariates extracted from land cover maps and observation-specific covariates to inform detectability. We then use the coefficients and detectability estimates from these models as priors to inform models predicting habitat-specific densities and correcting for spatial bias from the rest of the dataset for which presence only data was available.

We discuss how more accurate habitat-specific density estimates can be obtained from this integrated approach maximising the use of the available data and how it can be used to inform conservation measures at a regional scale, inform future surveys and provide further value to the extensive survey effort undertaken by volunteers to complete the atlas.

Matthew Geary is a Senior Lecturer in Conservation Biology at the University of Chester. He is a conservation ecologist with a particular focus on birds and uses ecological models and statistical analyses to investigate population dynamics and distributions to produce recommendations for species conservation.

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

The measurable cost of parasitism to reproductive success

Olivia Hicks¹, Sarah Burthe², Francis Daunt², Adam Butler³, Mark Newell², Motohiro Ito⁴, Katsufumi Sato⁴ & Jonathan Green¹

¹School of Environmental Sciences, University of Liverpool, Liverpool, L69 3GP, UK

²Centre for Ecology & Hydrology, Bush Estate, Penicuik, Midlothian, EH26 0QB, UK

³Biomathematics and Statistics Scotland, The King's Buildings, Edinburgh, EH9 3FD, UK

⁴Atmosphere and Ocean Research Institute, University of Tokyo, Chiba 277-8564, Japan

*och@liv.ac.uk  @O_Hicks1

Parasites are known to exert strong evolutionary and ecological forces on populations. However, despite parasites being ubiquitous these effects are rarely included in population models or considered in conservation. With parasite ranges extending due to changing climate it is timely and important to quantify the impact of parasitism on populations. Cormorants and shags are known to suffer from infections of intestinal parasites and we now have evidence showing foraging behaviours increase in energetic cost and decrease in duration with increased endo-parasite load. Although this effect is sub-lethal, it is logical to expect that during breeding these energetic effects of parasitism will be a constraint on adult provisioning ability. There is some evidence to suggest this may express itself in a reduction in reproductive output due to reduced ability to provision chicks, but this has yet to be explicitly tested.

Using a population of European shags, we were able to quantify endo-parasite load and breeding success over seven years. We show that endo-parasite load is negatively related to fledgling success in adult shags. While this effect is only seen in females, it is females that invest more in provisioning effort and reproductive output. Endo-parasite load was also found to be highly repeatable across years in females, strongly suggesting that an accumulated effect of parasitism may influence Lifetime Reproductive Success in this long lived species. In this study we provide evidence of the fitness consequences of parasitism to a free-living population of birds as well as the mechanism by which it operates. This mechanistic approach is likely to be important for better understanding future avian population trajectories in changing climates.

Olivia Hicks is a PhD student at the University of Liverpool. She is interested in using energetics as a tool to understand drivers of individual differences in reproductive success.

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Impacts of grazing on mountain bird populations: A meta-analysis

Susanne Jähnig, Antonio Rolando & Dan Chamberlain

Department of Life Sciences and Systems Biology, University of Turin, Via Accademia Albertina 13, 10123 Turin, Italy

* susanne.jaehnig@gmail.com  @SusanneJaehnig

High altitude biodiversity is threatened by climate change and changes in land management. In the European Alps, both climate-induced upward shifts in the treeline and abandonment of pastoral practices have already resulted in the loss of high altitude open habitats (shrub-grassland mosaics and alpine meadows) in many areas. Grazing could be used as a conservation tool to maintain open habitats, but grazing management targeted in the wrong areas, or applied at intensive levels, could also be detrimental to biodiversity. In order to inform management strategies, we undertook a meta-analysis on the effects of grazing on mountain birds. Standardized effect sizes were calculated from studies carried out within objectively-defined mountain regions. There was no overall consistent effect of grazing. However, when species were defined according to their main nesting habitat (forest, forest-shrub ecotone, grassland), there were significant differences. Forest birds responded negatively to grazing, but ecotone nesting species were positively affected. There was no consistent response for grassland birds. This suggests that grazing could be a useful tool to maintain open habitats for shrub-nesting species around the treeline. Many of these species nest in shrubs that are unpalatable to livestock (e.g. rhododendron and juniper), hence grazing may maintain open grassy areas which are beneficial foraging habitats, whilst minimising damage to key shrub species, thus maintaining a habitat mosaic. Grazing could therefore be a key tool in preventing forest encroachment in the forest-shrub ecotone, which is typically the most biodiverse habitat within the mountain environment.

Susanne Jähnig is currently enrolled as a PhD student at the University of Turin, Italy. In her PhD she focuses on the impacts of climate and land use change on Alpine bird distributions within the forest-shrub ecotone.

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Circannual rhythms functionally linking life histories and life cycles in birds

Julia Karagicheva^{1*}, Eldar Rakhimberdiev^{1,2}, Anatoly Saveliev³ & Theunis Piersma^{1,4}

¹ NIOZ Royal Netherlands Institute for Sea Research, Department of Coastal Systems and Utrecht University, P.O. Box 59, 1790 AB Den Burg, Texel, The Netherlands

² Department of Vertebrate Zoology, Biological Faculty, Lomonosov Moscow State University, 119991, Moscow, Russian Federation

³ Institute of Ecology and Geography, Kazan Federal University, Kazan, Russian Federation

⁴ Conservation Ecology Group, Groningen Institute for Evolutionary Life Sciences (GELIFES), University of Groningen, P.O. Box 11103, 9700 CC Groningen, The Netherlands

* jkaraj@gmail.com  @j_karagicheva

Life-history solutions to ecological selection pressures are often projected on a slow-fast life-history axis. To facilitate own fitness, fast-lived animals bet on high reproductive output, while slow-lived ones invest in increasing their survival chances. Birds often face the survival versus reproduction trade off in the beginning of the breeding season, when breeding early aids high breeding outcome, but imposes higher risk of death. Intuitively, all else being equal, short- and long-lived birds should benefit from responding to environmental cues and initiating spring activities earlier and later, respectively.

The rate of entrainment to the cues largely depends on circannual chronotype, i. e. the period of circannual clocks, which is close to, but never exactly matches the 365-day environmental year. We hypothesized that, in birds, early or late circannual chronotype will help adjusting annual schedules either responsively (in long-lived birds) or proactively (in short-lived birds). Hence, species with lower survival probability and fewer opportunities for future breeding, should benefit from early circannual chronotype, contrary to the birds with high survival rates, who should have long circannual periods.

We tested for the correlation between the chronotype, measured as circannual periods of various life-history stages under constant environmental conditions, and adult annual survival rate in birds. We confirmed this correlation, accounting for the shared ancestry and for the correlation of metabolic rate (BMR) with both, the survival rate and the circannual chronotype. Based on the results, we propose that the physiological circannual time-keeper, being responsive to the endogenous organismal and environmental processes at the same time, can be the long sought physiological mediator, coordinating energy and other organismal properties with each other and with environment.

Julia Karagicheva has evolved from a multitasking field ornithologist to a quantitative ecologist, and from a specialist in barnacle goose behavioural ecology to an ecologist, curious about processes at any organisational level, and particularly focused on the ways animals keep up with environments. She believes that fundamental research should facilitate efficient conservation.



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

The effect of prey availability and habitat on breeding performance among urban and rural peregrine falcons

Esther F. Kettel^{*1}, Louise K. Gentle¹, Richard W. Yarnell¹ & John L. Quinn²

¹ Nottingham Trent University, School of Animal, Rural and Environmental Sciences, Brackenhurst Campus, NG25 0QF, UK

² University College Cork, School of Biological, Earth and Environmental Sciences, North Mall, Cork, Ireland

* esther.kettel02@ntu.ac.uk

Urban environments present wildlife with multiple challenges, which many species are unable to adapt to. Conversely, some adaptable species have colonised towns and cities globally in response to an increased food availability and nesting opportunities. Whether or not species are actually benefiting from residing in these human-made environments is receiving increasing attention. However, how top-level species respond to urbanisation is poorly understood. The aims of this study were to detect and explain differences in the breeding performance based on food availability of an apex predator, the peregrine falcon (*Falco peregrinus*), in urban and rural environments. Historical breeding data was collected from various raptor groups across Great Britain, dating from 1992 – 2016. The breeding performance of peregrines nesting in urban and rural environments was then compared. The modelled density of 49 bird species (i.e. peregrine prey) and land-use around peregrine nests was compared and the effects on breeding performance was measured to explain differences among environments. Findings indicate that the breeding performance of peregrines was significantly greater in urban-nesters. Indeed, urban peregrines produced just over one more egg, one more egg to hatch, one more young to fledge, and had a higher nest success. Moreover, prey abundance was significantly higher in the urban sites, and is likely to be the paramount reason for the increased breeding performance. In the case of peregrine falcons, urban environments appear to provide not only adequate, but superior-quality alternative habitats to rural landscapes in terms of breeding performance. This research offers evidence that the novel environments humans impose on wildlife can, in fact, provide valuable habitats for some adaptable predators.

Esther Kettel has recently submitted her PhD thesis and is currently a lecturer in Wildlife Conservation at Nottingham Trent University. She has an interest in ecology and conservation, with a recent focus on how birds of prey respond to urbanisation and other land-uses.

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Validation and performance testing of a laser rangefinder for estimating avian flight in 3D

Nicola Largey¹, Aly McCluskie², Ben Wilson³, Bård Stokke⁴ & Elizabeth Masden¹

¹ Environmental Research Institute, University of the Highlands and Islands, Ormlie Road, Thurso, Caithness, KW14 7EE, UK

² Royal Society for the Protection of Birds (RSPB), The Lodge, Pottton Road, Sandy, Bedfordshire, SG19 2DL, UK

³ Scottish Association for Marine Science, University of the Highlands and Islands, Argyll, PA34 4BF, UK

⁴ Terrestrial Division, Norwegian Institute for Nature Research, NO-7485, Trondheim, Norway

* nicola.largey@uhi.ac.uk

Accurate estimation of bird flight characteristics in 3-dimensional space is useful for the assessment of bird responses to man-made structures such as wind turbines. Traditionally, flight activity has been studied using techniques such as observer-based vantage point surveys and line- and point- transects. Recently, these methods have been complemented with telemetry methods, e.g. GPS tagging, and radar. Although built and optimised as an optronic device for military and civil applications, the ornithodolite (based on a rangefinder and integrated digital magnetic compass, with laptop connection for data transfer and recording) can also be used to track and extract bird activity in space and time. However, before tracking instruments are used potential errors or inaccuracies in positional estimation should be assessed and quantified. Accordingly, as a tool for ornithology research, the ornithodolite currently lacks validation data. Remotely-controlled unmanned aerial vehicles (UAVs, a.k.a. drones) have proved useful as test targets in evaluating the performance of other ornithological data collection instruments, such as radar. Here, we describe a method for assessing the accuracy of the ornithodolite in estimating bird position in 3D space, using a dedicated UAV test target. The positional fixes (latitude, longitude and altitude) of the ornithodolite were compared to those derived from a drone-attached GPS tag and barometric altimeter, using the drone's internal GPS and barometer measurements as a reference. Field trials were carried out in open ground and focussed on testing each axis (latitude, longitude, altitude) in isolation and combination. Thus far analysis shows no significant difference in the estimation of drone position between instruments. The ornithodolite is highlighted as a robust instrument in collection of positional data for ornithological research and comparability of different technology platforms in estimating bird 3D space use is emphasised. Future work will focus on validation of the rangefinder beyond positional accuracy.

Nicola Largey is a 2nd year PhD researcher focussing on investigating bird flight characteristics and habitat use in relation to windfarm impacts. She is interested in the application of various technologies to gain novel insights into animal behaviour, particularly in relation to applied ecological problems.

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Contribution of pond management to avian diversity and abundance on farms in lowland England

Jonathan Lewis-Phillips^{1, 3*}, Steve Brooks², Carl Sayer⁴, Jan Axmacher⁵ & Geoff Hilton⁶

^{1, 2} Natural History Museum, Kensington, London, UK

^{3, 4, 5} University College London, UK

⁶ The Wildfowl and Wetlands Trust, Slimbridge, UK

* jonathan.lewis.15@ucl.ac.uk  @norfolkwildlife

Farmland bird populations in the UK have decreased by 56% since 1970. Intensification of agriculture and associated declines of habitat heterogeneity have been linked to the depletion of the main requirements of farmland birds.

We investigated whether lowland farmland pond management can contribute towards supporting bird populations. Currently, the majority of the UK's lowland agricultural ponds have not been managed for several decades and as a result are highly terrestrialised. Research has shown that managed, open canopy ponds support a higher diversity of aquatic invertebrates, macrophytes and amphibians than unmanaged, terrestrialised ponds. However, the link between farmland pond management and bird usage has been less well studied.

Between May 2016 and April 2017 we investigated the year-round contribution of managed, open canopy and unmanaged, overgrown farmland ponds in Norfolk, towards supporting avian diversity and abundance. Managed, open ponds were found to support a higher species richness and abundance of birds than their unmanaged counterparts. The potential link between synchronised emergent invertebrate hatches and bird activity at both pond management types were subsequently investigated. This revealed that, during the bird breeding season, high numbers of invertebrates emerge from managed ponds, in comparison to very low levels at the unmanaged ponds. This higher invertebrate productivity may be linked to the higher rates of bird activity, including foraging behaviour recorded at managed ponds.

Our results indicate that when managed, farmland ponds can support a greater diversity and abundance of birds and invertebrates.

Jonathan Lewis-Phillips is a NERC Doctorial Training Partnership candidate partnered with both the Natural History Museum and University College London. He is interested in investigating practical ways to mitigate rapidly declining farmland wildlife in the UK.

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Seabirds and marine plastic debris in the Northeast Atlantic: a synthesis and recommendations for research and monitoring

Nina J. O'Hanlon*¹, Neil A. James¹, Elizabeth A. Masden¹ & Alexander L. Bond^{2,3}

¹ Environmental Research Institute, North Highland College – UHI, University of the Highlands and Islands, Castle Street, Thurso, Caithness KW14 7JD, United Kingdom

² RSPB Centre for Conservation Science, Royal Society for the Protection of Birds, The Lodge, Sandy, Bedfordshire SG19 2DL, United Kingdom

³ Current address: Bird Group, Department of Life Sciences, The Natural History Museum, Akeman Street, Tring, Hertfordshire, HP23 6AP, United Kingdom.

* nina.ohanlon@uhi.ac.uk  [@Nina_OHanlon](https://twitter.com/Nina_OHanlon)

The presence of plastic in the marine environment is a globally recognised issue, with far-reaching economic, aesthetic, and environmental consequences. Numerous marine species interact negatively with plastic debris through entanglement, nest incorporation, and ingestion. However, in the Northeast Atlantic, an area of international importance for seabirds, we have little understanding of the spatial and temporal variation of how marine plastic affects different seabird species. To improve our understanding of active interactions between Northeast Atlantic seabirds and marine plastic we reviewed the published and grey literature to obtain information on all known documented cases of plastic ingestion and nest incorporation. We found that of 69 seabird species that commonly occur in the Northeast Atlantic, 34 (49%) had evidence of ingesting plastic. However, information from multiple countries and years was only available for 18 of these species (26%). We found only one published study on nest incorporation, for the northern gannet *Morus bassanus*. For many species, sample sizes were small or not reported, and only 39% of studies were from the 21st century indicating that we actually know very little about the current prevalence of plastic ingestion and nest incorporation for many species. Furthermore, in the majority of studies, the metrics reported were inadequate to carry out robust comparisons among locations and species or perform meta-analyses. This synthesis highlights important gaps in our current knowledge, and can be used to prioritise future research to obtain a more comprehensive and current understanding of how marine plastics are affecting seabirds in the Northeast Atlantic.

Nina O'Hanlon is an ornithologist with a particular interest in seabird ecology and conservation. She is currently a post-doc at the Environmental Research Institute (University of the Highlands and Islands). Previously, she completed a PhD at the University of Glasgow on Herring Gulls. Nina is also the BOU's Social Media Support Officer.

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Pinpointing what aspect of prey biology drives variation in Black-legged Kittiwake breeding success

Agnes Olin^{1,2*}, Neil Banas¹, Alan MacDonald¹ & Ruedi Nager²

¹ University of Strathclyde, UK

² University of Glasgow, UK

* agnesolin@gmail.com  @agnesbirgitta

In recent decades, seabird numbers have dropped all around the UK. This is thought to have been caused mainly by a decline in forage fish, in particular the lesser sandeel (*Ammodytes marinus*), which is an important prey for many seabirds. However, there is often not a very strong correlation between coarse-scale sandeel abundances and seabird population dynamics, but instead seabirds may be responding to more fine-scale changes in timing and energy content of the sandeels.

Here, we compare different measures of sandeel abundance, energy content and timing with detailed spatially-matched information on Black-legged Kittiwake (*Rissa tridactyla*) breeding success, with the aim of identifying which sandeel measures best predict kittiwake breeding success. We make use of several empirical datasets as well as output from a bioenergetics model of sandeels, covering a range of different locations and time periods.

Knowing what measure of sandeels shows the strongest correlation with kittiwake breeding success is of key importance as different measures, such as for example timing or energy content, may respond differently to changes in climate and in lower trophic levels. This knowledge thus enables us to improve our predictions for how environmental change will impact kittiwakes and other sandeel predators in the coming decades.

Agnes Olin is a PhD student based in Glasgow investigating how environmental impacts on lower trophic levels propagate up through the marine food chain to impact seabirds. She has a particular interest in seabirds and how they respond to environmental change.



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Genetic diversity and molecular phylogeny of the critically endangered Grenada dove (*Leptotila wellsi*)

Catherine Peters¹*, Howard P Nelson¹, Anna Muir¹, Bonnie L. Rusk² & Ian McDowal¹

¹ Conservation Research Group, Biological Sciences Department, University of Chester, Parkgate Road, Chester, CH1 1QZ

² Grenada dove conservation Programme, Grenada Forestry and National Parks Department, Queen's Park, St George's, Grenada, West Indies

* c.peters@chester.ac.uk  @lovethedove11

The Grenada dove (*Leptotila wellsi*) is a critically endangered species endemic to the island of Grenada. It exists in three seemingly isolated populations across the island. As an endemic on a small island with a small and decreasing population size this species is at risk from genetic deterioration. Particular risks include inbreeding depression and accelerated loss of genetic diversity resulting from ongoing habitat fragmentation and population isolation. This poses multiple threats such as diminished reproductive fitness and adaptability to environmental change, making it more susceptible to the risk of extinction. This is of particular concern given the threats of anthropogenic disturbance, alien invasive species and climate change to this species. Furthermore, the phylogenetic placement of the Grenada Dove among Columbidae is currently unknown. We conducted a genetic assessment from non-invasively collected feather samples from two of the populations to determine whether there was evidence of genetic connectivity or isolation between these populations. Mitochondrial DNA (mtDNA) markers - partial regions of NADH dehydrogenase subunit 2 (ND2) and cytochrome b (cyt b) - were used to calculate genetic diversity (F_{ST}) within and between the populations to assess genetic differentiation. We also predicted the phylogenetic placement of the Grenada dove within the genus *Leptotila* on the basis of analysis of partial regions of mtDNA sequences. We suggest a long term genetic monitoring programme for each of the existing populations to measure genetic diversity and connectivity across the three known populations.

Catherine Peters is a PhD student studying the application of genetic techniques for conservation of the critically endangered Grenada dove (*Leptotila wellsi*). Her main research focuses are phylogenetics and population genetics. She is particularly interested in how genetic data can be applied to practical avian conservation management strategies.

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Temporal-spatial adaptation theory of species diversity for future ornithology

Nikolay P. Kolomiytsev, Nadezhda Y. Poddubnaya* & Valeriya V. Lukyanova²

¹Department of Biology, Cherepovets State University, 5 Lunacharsky Ave., Cherepovets 162600, Vologda region, Russia

²Kharkov, Ukraine

*poddoubnaia@mail.ru

In a rapidly changing world, the role of species richness regularities in addressing challenges faced by society is more important than ever before. We focus on the big picture that stretches across a spectrum of specimen types (the latitudinal cline in species diversity, the asymmetry in species richness between the northern and southern hemispheres, various patterns of species richness along mountain and continental slopes, the higher fidelity of tropical organisms to spatial and temporal habitats etc.) so that they can be used to tackle ever bigger and more pressing questions, including climate change.

We argue that relatively stable environment allows species to move more and more towards specialization with a simultaneous narrowing of their ecological niches that in turn leads to a reduction of niche overlap and greater species packing in communities. In contrast, a wide range of regular environmental changes in time will cause various species to have not only very large, but also widely overlapping ecological niches. The competitive extinction of much of species and a general impoverishment of biota is a predicted outcome of interspecific competition under such conditions. In tropical mountains and on the continental slope, where the environment is stable enough, the degree of its differentiation depends mainly on the steepness of slope. And since the steepest slopes are tend to be located at intermediate elevations and intermediate bathyal depths, it is there that there are conditions for the highest specialization and closest possible packing of species.

Such a unified theory of species diversity may be referred to as the 'temporal-spatial adaptation theory.' It will allow us to expand our understanding of the main underlying mechanisms responsible for species richness patterns, and provides a framework for new approaches to biodiversity conservation of both different regions and the planet as a whole.

Nadezhda Y. Poddubnaya is a biologist with a main research focus on wildlife ecology and conservation, mainly in forest ecosystems, and in applied issues of understanding the impact of environmental changes on biodiversity, understanding processes in the large-scale distribution of animal distributions, abundance and species richness.



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

How does landfill use affect survival of partially migratory white storks?

Kate Rogerson^{1*}, Phil Atkinson³, Inês Catry², Jenny & Aldina Franco¹

¹University of East Anglia, Norwich Research Park, Norwich, NR4 7TJ, UK

²CEABN/InBio- Rede de Investigação em Biodiversidade e Biologia Evolutiva, Instituto Superior de Agronomia, Universidade de Lisboa, 1349 - 017 Lisboa, Portugal

³British Trust of Ornithology, The Nunnery, Thetford, IP24 2PU, UK

* Katharine.rogerson@uea.ac.uk  @katiebee1991

Supplementary feeding of wild species is often undertaken as part of conservation strategies for declining wildlife populations, such as feeders for garden birds or feeding stations for raptors. In addition to purposefully providing food subsidies incidental food resources are made available at open landfill sites. Many species utilise this predictable year-round organic waste resource, such as White storks (*Ciconia ciconia*). In recent decades this previously wholly migratory species established resident populations in Iberia, some individuals staying in Europe during the winter instead of migrating to Africa

This study investigates the effect of landfill site use on the annual survival of white storks, exploring the differences between adults and juveniles. Data with high temporal and spatial resolution was collected from 68 adults and 98 juvenile white storks tracked with GPS/GSM transmitters (deployed from 2012 to 2017). The survival of individuals between lifecycle stages, pre-migratory, migratory and wintering is analysed in relation to proximity of nest to landfill sites and landfill site use. Results from analysis of juveniles show there is no effect of nest proximity to landfill sites on juvenile survival, but use of landfill sites prior to first migration increases survival; 40% more individuals survive to migration if they use landfill sites.

Waste management is becoming more environmentally-friendly, in Europe an EU directive requires open landfill sites in Europe to close in favour of indoor recycling centres. However this will lead to a reduction in food resources for white storks and other bird species that use open landfill sites, e.g. gulls, egrets and kites. The positive impact of landfill sites on white stork survival indicates that population declines are likely once landfill sites are closed. An open discussion on whether access to organic waste should be maintained to support populations of birds that currently thrive around landfill sites is needed.

Kate Rogerson is an ecologist and third year PhD student at the University of East Anglia, interested in the study of movement behaviour with GPS technology and how human modifications to the environment can alter animal behaviour which affects population demographics.



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Unravelling the wintering areas and morphological differences in populations of migratory passerines in the Afro-Eurasian flyway

Yaara Aharon-Rotman^{1*}, Yosef Kiat^{2,3}, Gidon Perlman², Keith Hobson⁴ & Takuya Iwamura¹

¹ Department of Zoology, Tel Aviv University, 6997801, Israel

² Jerusalem Bird Observatory, Jerusalem, Israel

³ Animal flight Laboratory, Department of Evolutionary and Environmental Biology, The University of Haifa, Mount Carmel, Haifa, Israel

⁴ Department of Biology, University of Western Ontario, Ontario, Canada

* yaara.a.rotman@gmail.com  @YaaraRotman

Billions of migratory birds, many of them small passerines, fly thousands of kilometers from their breeding habitats in Europe to non-breeding sites (or "wintering" grounds) in Africa. Despite its importance, understanding of the conditions at wintering grounds of migratory passerines in Africa is limited to qualitative observations. Israel has a unique potential for the study of migratory passerines as an important stop-over site before and after crossing the extensive migration barriers, the Sahara and the Red Sea in a narrow corridor in the flyway connecting Eurasian and African continents. Our aims are to (1) analyse phenological changes in arrival dates to Israel and identify potential causes, (2) map the moulting areas for wintering migratory passerines in the Eurasian-African flyway using stable isotopes from feathers ($\delta^2\text{H}$, $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$), and (3) study any morphological differences between potential multiple wintering populations. We expected earlier individuals to have longer wings than individuals of the same species arriving later as a morphological adaptation for efficient longer flight.

Our initial results of arrival dates to Israel show multiple peaks of arrival in some years, which implies multiple wintering populations. We next verify that the peaks are a result of different wintering populations arrived from different areas in Africa using stable isotope analysis for two of the five species sampled (Eurasian Reed Warbler *Acrocephalus scirpaceus* and Eastern Olivaceous Warbler *Hippolais pallida*). Furthermore, we confirmed morphological differences between early and late arrivals to Israel, with earlier arriving individuals having longer wings than individuals of the same species arriving later. We expect to map the wintering distribution of five passerine species and analyse phenological differences in arrival timing to Israel and morphological differences.

Yaara Aharon-Rotman is a postdoc ecologist at Tel Aviv University, Israel with main interest is avian migration, mainly in stopover ecology and how animals prepare themselves for long flights. In light of recent global changes, she is particularly interested in evaluating the responses of migratory birds to varying environmental conditions both at individual and population levels.

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Foraging behaviour of northern rockhopper penguins north and south of the sub-tropical front: Implications for the species' long-term resilience to environmental perturbations

Antje Steinfurth^{1,2}, Richard J Cuthbert^{3,4}, Alexander L. Bond³, Trevor Glass⁵, Azwianewi Makhado⁶, Robert J M Crawford⁶, Ross M Wanless^{2,7}, Peter G Ryan² & Norman Ratcliffe⁸

¹ RSPB Centre for Conservation Science, David Attenborough Building, Pembroke Street, Cambridge, UK

² Percy FitzPatrick Institute of African Ornithology, University of Cape Town, Rondebosch, 7700, South Africa

³ Royal Society for the Protection of Birds, The Lodge, Sandy, SG19 2DL, UK

⁴ Conservation Solutions, 9 Prospect Drive, Belper, Derbyshire, DE5 61UY, UK

⁵ Tristan Conservation Department, Edinburgh of the Seven Seas, Tristan da Cunha, South Atlantic, TDCU 1ZZ

⁶ Department for Environmental Affairs, Oceans and Coasts, PO Box 52126, Cape Town 8000, South Africa

⁷ BirdLife South Africa, 19 A Foregate Square, Heerengracht St, Foreshore 8801, Cape Town, South Africa

⁸ British Antarctic Survey, High Cross, Madingley Road, Cambridge, CB3 0ET, UK

* antje.steinfurth@rspb.org.uk  @antjesteinfurth

Despite the proximity between northern rockhopper penguins' breeding sites in the South Atlantic, the distance of 380 km separating Gough from the main islands of Tristan da Cunha means that Gough is the only breeding site for the species south of the Sub-tropical front placing the island in sub-antarctic waters. Penguins were tracked at sites on either side of the Sub-tropical Front: Nightingale (north) and Gough (south) during their annual cycle in 2012/13 and 2013/14 and again on Nightingale in 2016/2017. Penguins displayed discrete foraging behaviours, distributions, and habitat use during both the breeding and non-breeding seasons. While Nightingale penguins showed high variability in foraging locations during incubation and over-winter migration and dispersed widely across the South Atlantic, penguins on Gough displayed strong directionality with high continuity, travelling south/southeast into the Antarctic convergence.

Northern Rockhopper penguins will face new challenges in the coming decades as climate change continues to alter marine foraging habitat. The most likely threat posed by climate change to the Northern Rockhopper penguin populations are large-scale climatic anomalies in the subtropical Indian and Atlantic Ocean associated with the southward shift of frontal systems and deepening of the thermocline; both secondary to warming the Southern Ocean's surface waters. Consequently, understanding marine habitat use and preferences of populations is essential to predict their long-term resilience to environmental perturbations, and needs to be considered in future conservation planning.

Antje Steinfurth is a Conservation Scientist at the RSPB leading the Darwin Plus funded '*Project Pinnamin* - conserving Northern Rockhopper penguins on Tristan da Cunha'. Her research focuses on understanding the processes that regulate seabird distributions, demography and population dynamics, and applying this

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

understanding to the conservation of threatened populations.

Effects of habitat changes on terrestrial bird communities in San Cristobal island, Galapagos archipelago, Ecuador

Daniel Velarde¹ & Diego F. Cisneros-Heredia^{1,2}

¹ Universidad San Francisco de Quito USFQ, Colegio de Ciencias Biológicas & Ambientales, Laboratorio de Zoología Terrestre, Quito 170901, Ecuador

² King's College London, Department of Geography, London, UK

* dvelardeg@estud.usfq.edu.ec  [@ZoologiaUSFQ](https://twitter.com/ZoologiaUSFQ)

Habitat change affect diversity of bird communities, allowing the expansion and dominance of some guilds and species, and the decline or even local extinction of others. This study analysed differences in the diversity of bird communities in the San Cristobal island, Galapagos archipelago, Ecuador, between different habitats on the lowlands (old-growth lowland deciduous forests and suburban and urban green areas) and on the highlands of the island (old-growth seasonal evergreen forest and agricultural areas). We sampled three sites in each habitat using three sampling methods: visual transects, song recording points, and mist netting. Communities on the highlands showed a greater difference in terms of species richness, but not pronounced differences in terms of abundance and frequency. On the highlands, insectivorous endemic species (e.g., Grey Warbler-finch *Certhidea fusca* and Woodpecker Finch *Geospiza pallida*) were mostly restricted to the old-growth forests, while granivorous endemic species were extremely dominant on agricultural areas (e.g., Small Ground-Finch *Geospiza fuliginosa* and Medium Ground-Finch *G. fortis*), as well as introduced species (Smooth-billed Ani *Crotophaga ani*). On the lowlands, species communities were fairly similar in terms of their species richness but some species showed a lower abundance and frequency on the urban and suburban habitats (e.g., San Cristobal Mockingbird *Mimus melanotis*, Galapagos Flycatcher *Myarchus magnirostris*, Small Tree-Finch *Geospiza parvula*). Yellow Warbler *Setophaga petechial* was the only species that showed no variation in their abundance and frequency across all habitats. This study has strong implications for the formulation of conservation strategies and policy-making focused on the management of urban and agricultural areas in San Cristobal island.

Daniel Velarde is student of Biology at Universidad San Francisco de Quito USFQ, Ecuador, with major interests in community ecology and behaviour in birds.

Diego F. Cisneros-Heredia is full-time professor and researcher, director of Laboratory of Terrestrial Zoology, Universidad San Francisco de Quito USFQ, Ecuador

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Context dependent colonisation of terrestrial habitat islands by a long-distance migrant bird

Robin Whytock¹, Elisa Fuentes-Montemayor¹, Kevin Watts², Nicholas Macgregor^{3,4}, Kirsty Park¹

¹ Biological and Environmental Sciences, Cottrell Building, University of Stirling FK9 4LA, UK

² Forest Research, Alice Holt Lodge, Farnham GU10 4LH, UK

³ Current: Durrell Institute of Conservation and Ecology (DICE), School of Anthropology and Conservation, University of Kent, Canterbury, Kent CT2 7NR, UK

⁴ Natural England, Nobel House, 17 Smith Square, London SW1P 3JR, UK

* r.c.whytock@stir.ac.uk  @RWhytock

Understanding how landscape configuration influences colonisation dynamics has become an important conservation issue in the face of global land use change. Although it is well known that landscape composition and configuration can dictate how individuals disperse through the landscape, individuals can also preferentially choose to colonise a habitat patch or 'habitat island' based on its relative attractiveness within the wider landscape context. Such context-dependent colonisation behaviour has been demonstrated in aquatic island systems, but has rarely been observed in terrestrial habitat islands.

We present results from a large scale 'natural' colonisation experiment designed to test if landscape context predicts colonisation rates in terrestrial habitat islands. We used bioacoustic recorders to detect the spring arrival times and settlement rates of a long-distance migrant bird (*Willow Warbler* *Phylloscopus trochilus*), in 23 secondary broadleaf woodlands. Patches varied in their surrounding landscape composition and configuration but were of similar size to control for area-sampling effects. We also controlled for patch 'quality' as far as possible by selecting woodlands with similar tree species composition and vegetation structure. We hypothesised that, after controlling for latitude and longitude, landscape-level factors would be stronger predictors of first arrival and settlement than patch-level metrics. Results agreed with these expectations, and birds arrived and settled earlier in patches surrounded by a low proportion of woodland in the landscape.

These findings suggest that even for a highly mobile, Afro-Palaearctic migrant bird, colonisation and settlement rates depend on landscape composition. Since earlier arrival is generally advantageous for migrant birds, we conclude that isolated habitat islands become relatively more attractive when habitat availability in the landscape is low. Future research should investigate if small, isolated habitat islands are acting as ecological traps.

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Robin Whytock is a PhD student at the University of Stirling with broad interests in the ecology and conservation of forest birds. His PhD research seeks to understand how biodiversity responds to habitat creation in a landscape context, with the aim of informing landscape-scale conservation and policy.

Vagrancy and population growth of the Lesser Black-backed Gull (*Larus fuscus*)

Lucinda C. Zawadzki^{1*} & Richard R. Veit^{2,3}

¹Oxford Navigation Group, Department of Zoology, University of Oxford, Oxford, UK

²Department of Biology, College of Staten Island/City University of New York, 2800 Victory Blvd., Staten Island, NY 10314, USA

³The Graduate Center, 365 Fifth Avenue, New York, NY 10016, USA

* lucinda.zawadzki@gmail.com

Lesser Black-backed Gulls (*Larus fuscus*) have a dramatic and well-documented history of population growth in Europe and Iceland, and of vagrancy to Greenland and North America. In North America, Lesser Black-backed Gulls were first detected during the mid-20th Century, and the number of vagrants has since grown substantially, with 1000 to 2000 individuals present each year. While no breeding pairs have been found, there have been two cases of hybridization between a Lesser Black-backed Gull and a Herring Gull – one unsuccessful pair in Juneau, Alaska, USA in 1993, and another in Appledore, Maine, USA in 2007, which has fledged five chicks to date. Despite lack of breeding, they still continue to appear in increasing numbers each year.

We hypothesized that the mechanism underlying increased abundance in North America is repeated vagrancy driven by population growth in Greenland, Iceland, and Northwestern Europe. To support this idea, we related annual incidence of vagrancy to North America, to annual estimates of population growth in Europe. We found that population growth in Greenland most directly correlated with vagrancy to North America, while population growth in the UK correlated negatively with numbers of vagrants.

Greenland's increasingly large source population, coupled with known migratory tendencies of the Lesser Black-backed Gull, have likely led to their expansion to North America. This corresponds with the Lesser Black-backed Gulls initial colonization of Greenland in the early 1980s, the timing of which was attributed to a large source population in Iceland and Northwestern Europe. These continued instances of vagrant movement in Lesser Black-backed Gulls illustrate this species' propensity to disperse, and their ability to adapt to future changing climatic conditions via movement. Understanding these movements is becoming increasingly important as many species face challenges that threaten their continued survival.

#BOU2018

21st Century Ornithology: challenges, opportunities and decisions

27 – 29 March 2017 | University of Norringham, UK



POSTER ABSTRACTS

Abstracts are in alphabetical order by presenting author's surname

Lucinda Zawadzki is a graduate student studying for a DPhil in Zoology at the University of Oxford. Her main research focus is on vagrancy in birds. She plans to utilize both field and analytical methods for her thesis to uncover the probable mechanisms underlying this behavior.