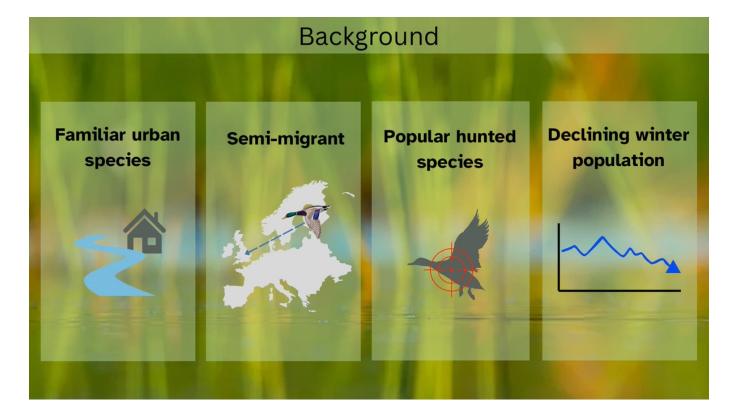
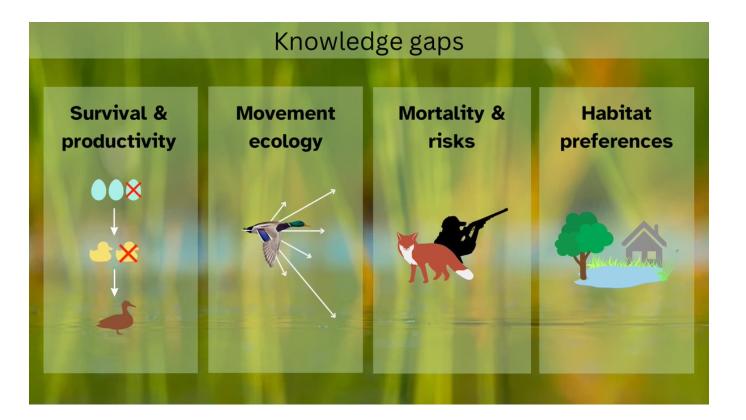
Despite being a ubiquitous feature of UK wetlands, there is still much we don't know about mallards. I'm a 1st year PhD student at @EssexLifeSci aiming to change that by studying mallard survival, productivity & movement 1/6 #BOU2024 #BREAK1



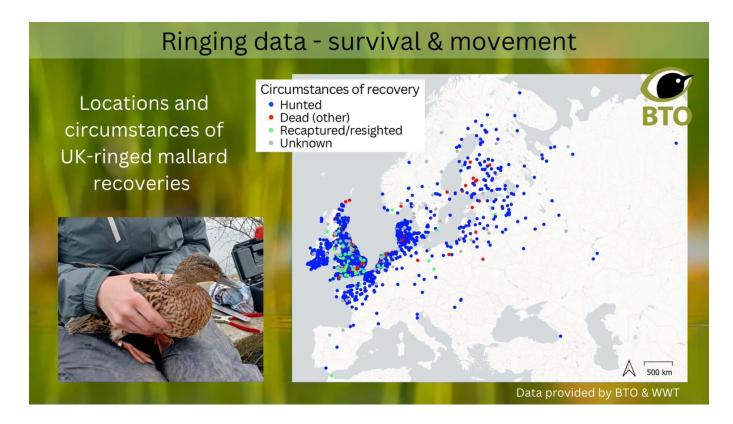
Mallards are a familiar species, well-loved by the general public & widely hunted. UK winter numbers are inflated by migrants & game-farm are released for shooting. While breeding numbers appear steady, the UK winter population has been declining for ~30 years 2/6 #BOU2024 #BREAK1



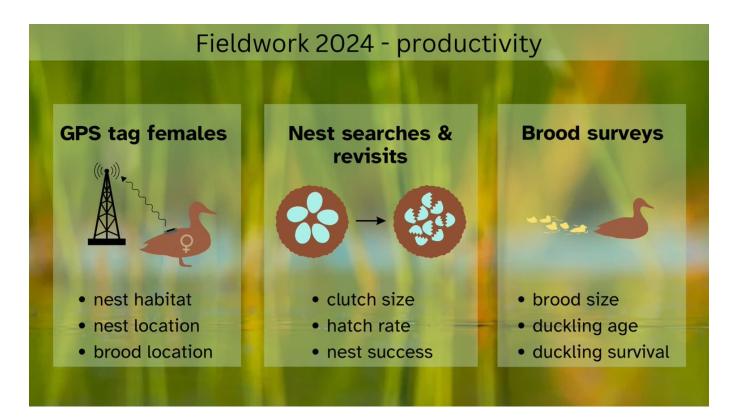
Drivers of this decline are unclear. Possibilities include short-stopping & over-harvest. We lack contemporary, UK-specific estimates of survival & productivity rates key for population management. We also know little about 1 movement ecology & habitat needs 3/6 #BOU2024 #BREAK1



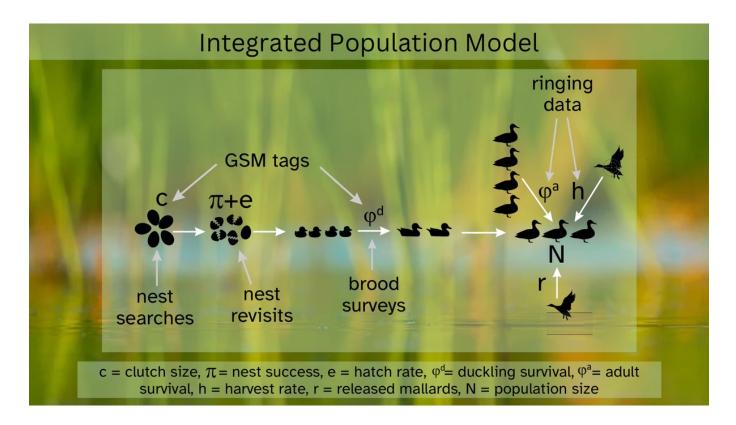
I will be using ring-recovery data to assess demographic, temporal & spatial variation in survival rates. I'm also using this data to study movement behaviour & key areas of mortality. Most UK-ringed mallards are recovered via hunting, most often in FRNL&DK 4/6 #BOU2024 #BREAK1



This summer I will be searching for & monitoring a nests & conducting brood surveys to gather data on key productivity parameters. I'll also be using GPS tags to track breeding females & uncover their nest habitat preferences & brood movements 5/6 #BOU2024 #BREAK1



Ultimately, I will be combining this productivity data with ringing data in an integrated population model to assess the status of the population, harvest sustainability & drivers of decline. Feel free to ask any questions or come & say hi at #BOU2024 6/6 #BOU2024 #BREAK1



1/12 Day 2 closing session of day 2 at this remarkable British Ornithologists' Union conference in Nottingham! \*#BOU2024 #Sesh4 #Keynote #ornithology ... \*



2/12 #BOU2024 #Sesh4 Get set for some thought-provoking insights! • This keynote draws from a recent publication in collaboration with @MichGcia and Javier Quesada, now live in @JUrbanEcology https://t.co/Qho5Ay2d5O

# KEYS TO THE CITY: An integrative conceptual framework on avian urban filtering

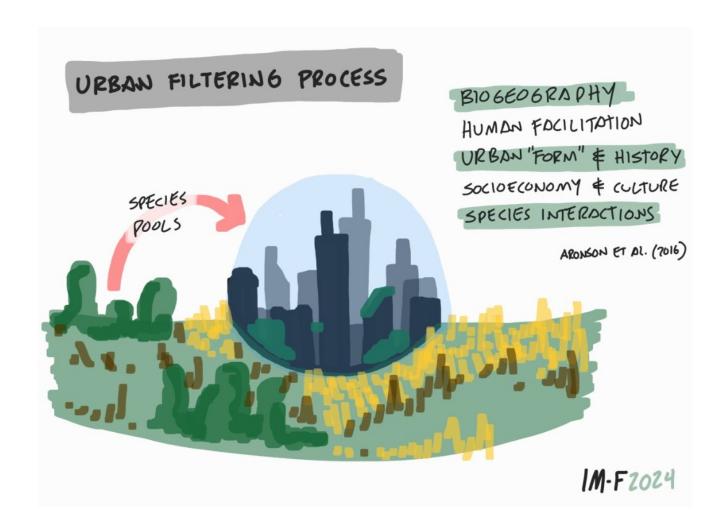


ME+GARCÍA-ARROYO + PUESADA JOURNAL OF URBAN ECOLOGY 2022, juac 026

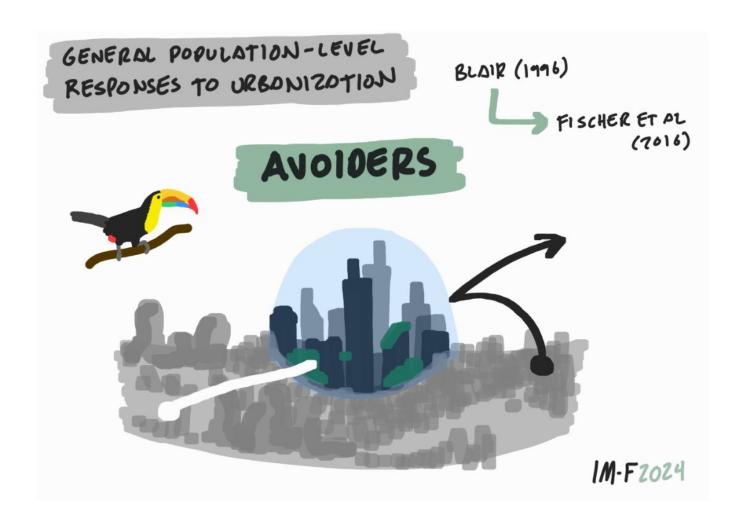
IM-FZOZ4

@MichGcia @JUrbanEcology 3/12 #BOU2024 #Sesh4 I'll dive into birds' responses to urban environments. Importantly, cities host species from the regional pool (plus others we've brought!), who can survive (and even thrive) in cities depending on a set of key drivers (ref: https://t.co/qq9meg0yxb)





@MichGcia @JUrbanEcology 4/12 #BOU2024 #Sesh4 Avian responses can be grouped to show general trends. "Urban avoiders", tend to avoid cities; however, some may inhabit large greenspaces with their numbers determined by non-urban populations (refs: https://t.co/kMBePOjFPt https://t.co/fo8yrf7bhh)



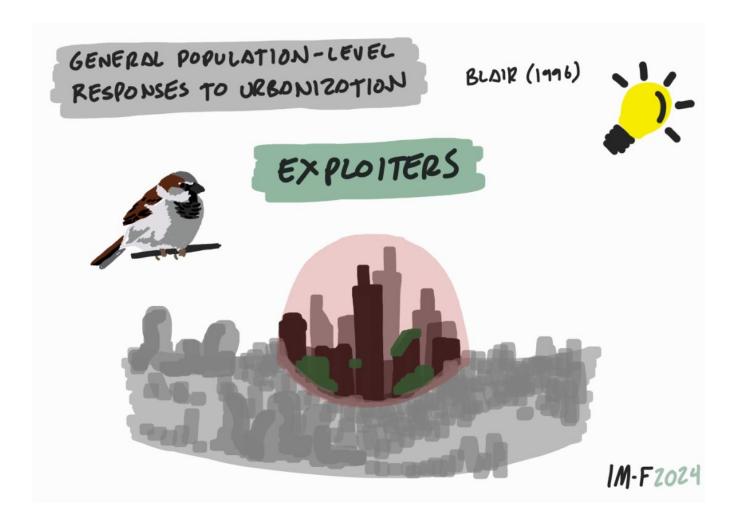
@MichGcia @JUrbanEcology 5/12 #BOU2024 #Sesh4 A second group, "urban utilizers" (previously "suburban adapters"), can dwell within cities • in large numbers, but, the viability of their populations still depends on those of non-urban populations (refs: https://t.co/kMBePOjFPt https://t.co/fo8yrf7bhh)



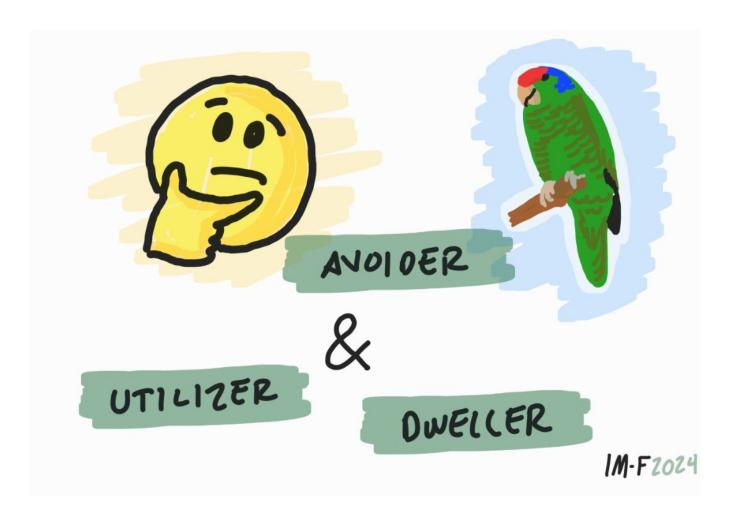
@MichGcia @JUrbanEcology 6/12 #BOU2024 #Sesh4 A third group, "urban dwellers", thrive in urban environments, as may also across non-urban systems. Unlike the other groups, their populations aren't dependent of the non-urban populations (refs: https://t.co/kMBePOjFPt https://t.co/fo8yrf7bhh) > 4



@MichGcia @JUrbanEcology 7/12 #BOU2024 #Sesh4 A final group are the "urban exploiters". While technically considered "dwellers", their numbers peak in cities © compared to non-urban populations, often dominating urban bird communities (e.g., pigeons, sparrows, starlings) (ref: https://t.co/kMBePOjFPt)



@MichGcia @JUrbanEcology 8/12 #BOU2024 #Sesh4 But, how can a species like the Lilac-crowned Parrot (Amazona finschi 🐍) simultaneously act as an "avoider", a "utilizer", and a "dweller"? The answer lies in the dynamic nature of the urban filtering process, which operates spatially and temporally 🚜 📫



@MichGcia @JUrbanEcology 9/12 #BOU2024 #Sesh4 In our paper , we synthesize avian filtering in cities and propose a multi-dimensional & spatio-temporally dynamic framework to understand it, underlining the role of avian-related & external factors in shaping this phenomenon (ref: https://t.co/G8prxoBGfZ)

SPATIO-TEMPOROLLY DYNAMIC MULTI-DIMENSIONAL FILTER



INTRINSIC FACTORS

Mechanisms: genetics, plasticity

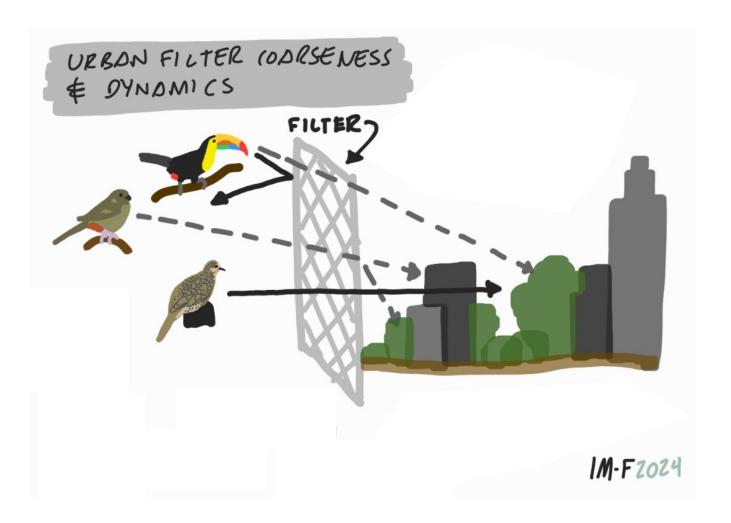
traits: behavior, morphology, physiology, etc.

#### EXTNIRINSIC FACTORS

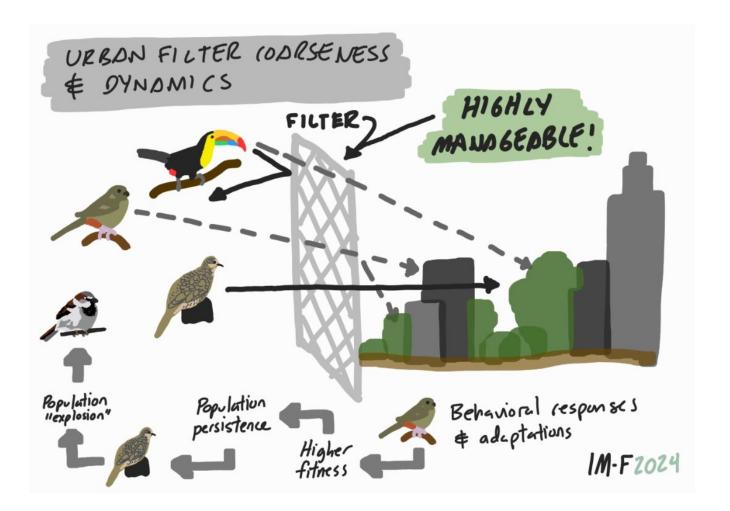
Infrastructure, food predictability, human activities, usban hazards, inter-specific interactions, social and economic factors, etc.



@MichGcia @JUrbanEcology 10/12 #BOU2024 #Sesh4 In the image you can see a cartoon of how urban "avoider" (e.g., toucan), "utilizer" (e.g., towhee) and "dweller" (e.g., dove) birds get filtered in or out an urban system (dashed lines represent dependence on non-urban populations).



@MichGcia @JUrbanEcology 11/12 #BOU2024 #Sesh4 Through behavioral responses & further adaptations, "urban utilizers" can increase their fitness & gain population "independence" from non-urban sources, eventually becoming "dwellers" (or even "exploiters" © if they manage to exploit urban resources)



@MichGcia @JUrbanEcology 12/12 #BOU2024 #Sesh4 For more details, check out the references cited across the ☑ including our paper that serves as the foundation for this presentation. Thanks for your attention! Feel free to reach out to me to discuss this or anything else related with urban dinos! ♣ ♣

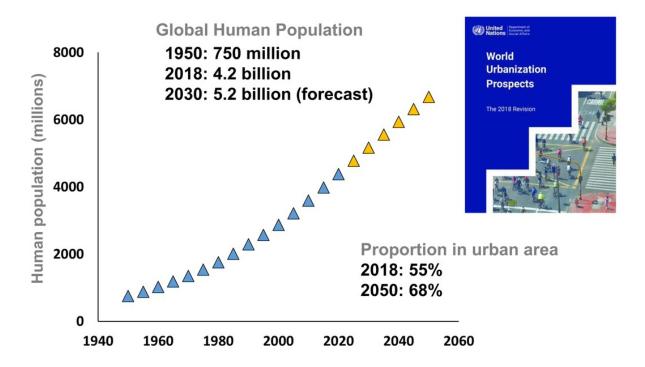


### ian. macgregor@helsinki.fi

@macgregorfors XX

IM-F2024

1/13 #BOU2024 #SESH5 As the global human population increases, so does the proportion that lives in urban areas. This will inevitably lead to larger and/or denser cities, and likely increased environmental impacts of urbanization.



2/13 #BOU2024 #SESH5 Urban biodiversity, although reduced, has benefits to city dwellers through the provision of ecosystem services, contributions to well-being and sensitization to wider biodiversity issues (the so-called Pigeon Paradox).



3/13 #BOU2024 #SESH5 There is therefore a need to develop sustainable and inclusive cities in line with the UN's Sustainable Development Goal 11, which should include enhancement of urban biodiversity and the benefits it brings.

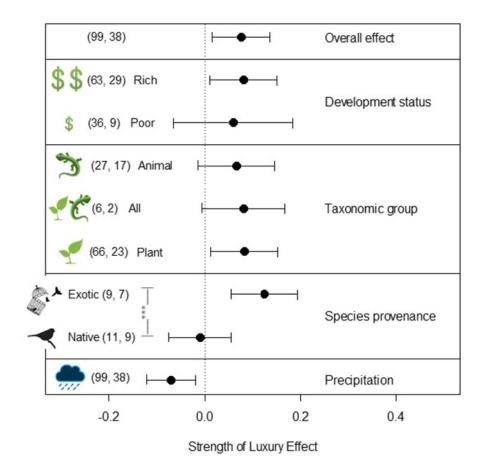




4/13 #BOU2024 #SESH5 The benefits of urban biodiversity aren't often shared equally across different socio-economic groups. The within-city correlation between wealth status and biodiversity, termed the Luxury Effect, represents environmental injustice https://t.co/CTIalVwqLe

5/13 #BOU2024 #SESH5 We performed a meta-analysis to understand the prevalence of ENVi and to identify its drivers. The findings can feed into strategies for urban development to promote greater inclusivity in terms of biodiversity benefits.

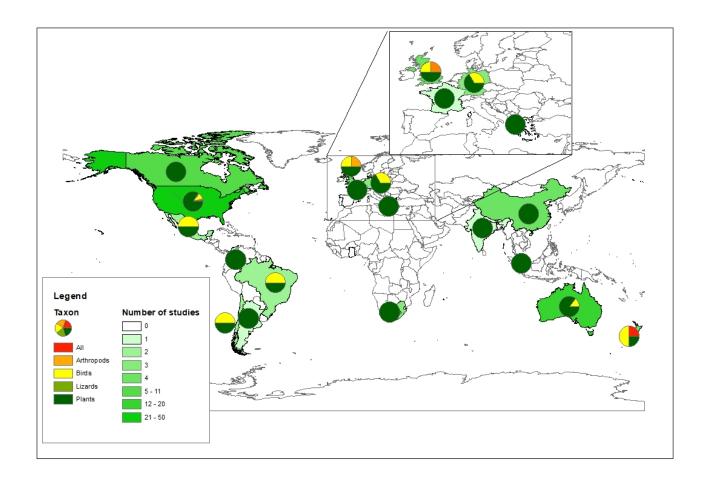
6/13 #BOU2024 #SESH5 There was a significant overall association between wealth status and urban biodiversity. There was also a significant effect of species provenance - ENVi (environmental injustice) was evident only in alien species (but n was small) https://t.co/Q3u1T3PXA8



7/13 #BOU2024 #SESH5 ENVi was significantly associated with precipitation – cities in drier regions showed greater levels of environmental injustice, likely because water is a costly resource in these areas.

8/13 #BOU2024 #SESH5 The majority of current research on ENVi considers linear wealth-biodiversity relationships. We argue that non-linear responses and interactive effects (eg in South African birds https://t.co/wY6CLOUj2g) are likely common and should be considered more fully.

9/13 #BOU2024 #SESH5 Furthermore, current research on ENVi shows clear taxonomic and geographic biases. Most evidence comes from plants and birds and there are relatively few studies from developing countries where population growth and rates of urbanization are greatest.



10/13 #BOU2024 #SESH5 How do urbanites perceive and value biodiversity? This aspect is lacking from ENVi research – but this knowledge is crucial to develop strategies that benefit both urban biodiversity and the needs of the human population.

11/13 #BOU2024 #SESH5 As part of a national project https://t.co/BojykyOEq1, we will identify elements that enhance urban biodiversity & those that are valued by people based on a large sample of surveys. This'll help formulate win-win strategies for urban development @nbfc\_italy

12/13 #BOU2024 #SESH5 This will be supported by a national citizen science programme https://t.co/M3wXDSuPDd that will have the dual purpose of awareness-raising & of collecting a large amount of data with which we can address ENVi across a range of vertebrate & invertebrate taxa



13/13 #BOU2024 #SESH5 Studying the relationship between socio-economic status and urban biodiversity (i.e. the Luxury Effect) provides a very useful framework to assess the factors that create environmental injustice and thus to develop strategies to create more equitable cities.

1/6 #BOU2024 #SESH4 #ornithology Urbanisation is occurring rapidly across the globe. Urban areas are characterised by: 🜆 Increased amounts of impervious surfaces; 👪 Altered microclimates; 👪 Novel community compositions

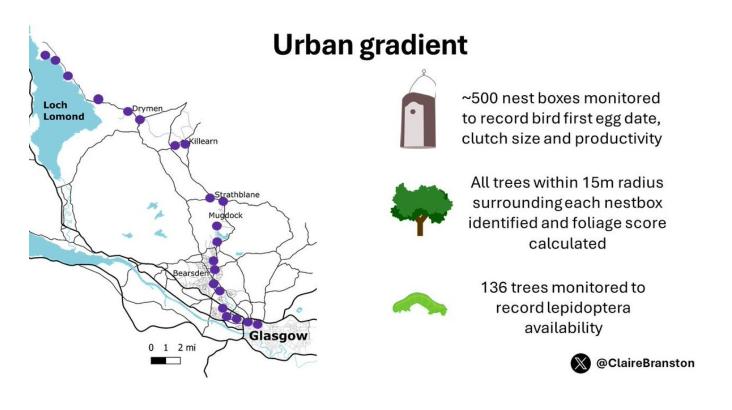
## Native trees, bird breeding phenology, reproductive success and survival along an urban gradient

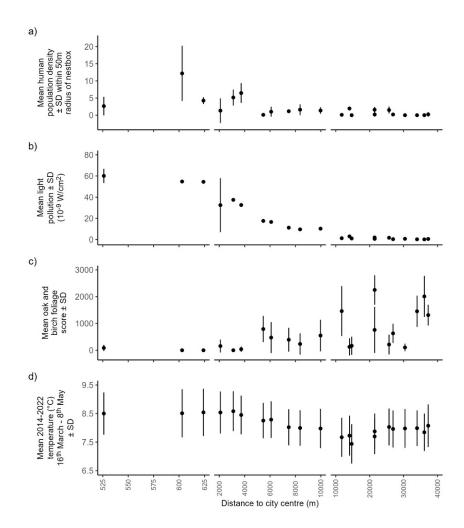
#### Claire Branston

Catrin Eden, Pablo Capilla-Lasheras, Conor Haugh, Paul Baker, Rachel Reid, Kate Griffiths, Stewart White, Davide Dominoni



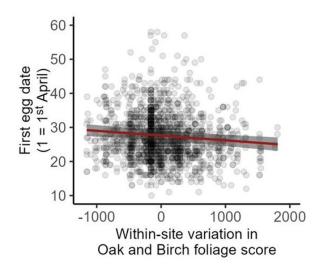
2/6 #BOU2024 #SESH4 Using 9 years of data from a 40km urban gradient we: Investigate the environmental factors driving differences in Blue Tit reproductive traits along an urban gradient Explore whether reduced urban productivity may be balanced by higher adult survival





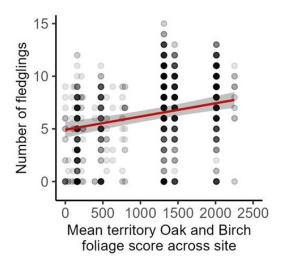
3/6 #BOU2024 #SESH4 Eggs are laid earlier when more Oak and Birch available in a territory More chicks successfully fledge when a site has more Oak and Birch available Why is Oak and Birch so important? Do we find more caterpillars when we have more Oak and Birch?

## Earlier first egg laying date with increased oak and birch availability





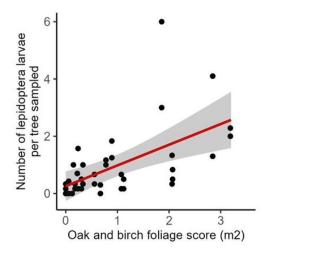
## Increased number of fledglings with increased oak and birch availability



@ClaireBranston

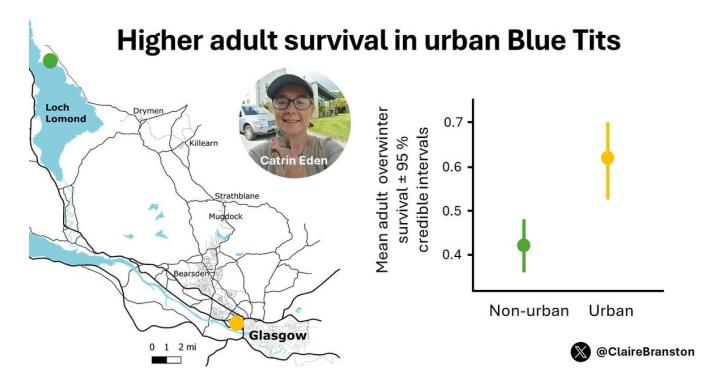
4/6 #BOU2024 #SESH4 • When more Oak and Birch is present, more caterpillars are available to insectivores which likely drives the increase in fledglings. • It is important to carefully select tree species for planting in urban areas to ensure support for full food chains.

## Increased lepidoptera availability with increased oak and birch availability



@ClaireBranston

5/6 #BOU2024 #SESH4 Considering the extremes of our gradient, we see reduced productivity in the urban site. Verwinter survival in adult Blue Tits is higher in our urban site compared to the non-urban site, which may help compensate for reduced productivity.



6/6 #BOU2024 #SESH4 Increased availability of Oak and Birch leads to earlier egg laying, more fledglings and caterpillars. This highlights the importance of completing food chains in urban areas. Higher adult survival in urban Blue Tits may compensate for reduced productivity.

#### Thanks!

















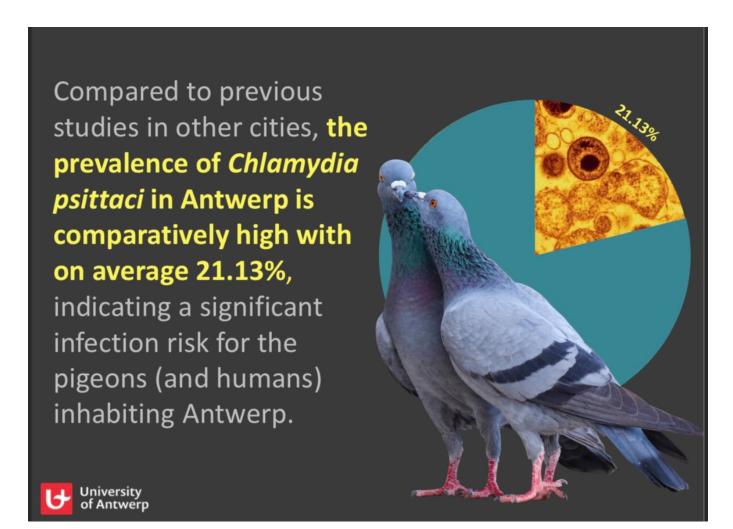
1/6 #break1 Today I'm presenting part of my PhD research at the #BOU2024! — Join me in the following thread as I'm looking into infectious hotspots and prevalence rates in the urban landscape. #DiseaseEcology #UrbanEcology



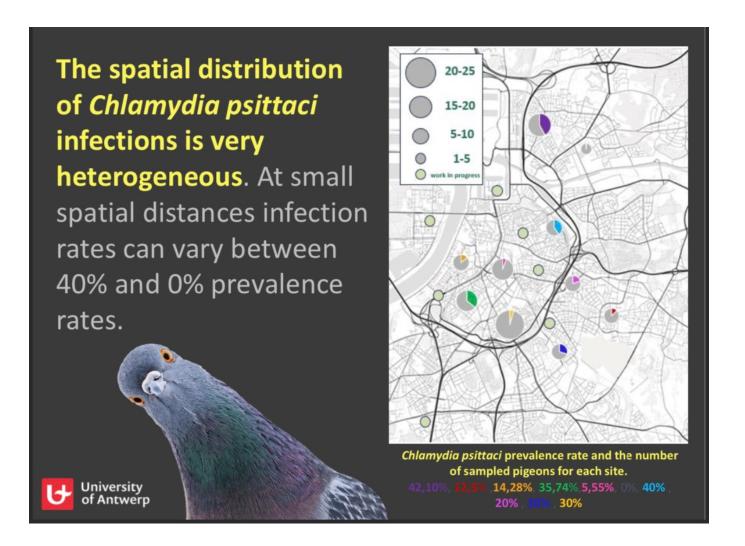
2/6 #BOU2024 #break1 Urban birds face opportunities & challenges in #cities: navigating dynamic landscapes & heightened disease risks due to larger populations. Yet, the impact of #urbanisation on disease transmission remains unclear. #pigeons #urbanisation

3/6 #BOU2024 #break1 \* • To study this dynamic, we chose #Chlamydia psittaci as model, a bacterium commonly found in #pigeons and potentially risky to humans. We screened the pigeons (N=123) using conventional #PCR and CPF/R primers (doi:10.1016/s0378-1135(96)01268-0) https://t.co/kLxXkqZOOt

4/6 #BOU2024 #break1 The first question we're answering is "What's the prevalence of #Chlamydia psittaci in Antwerp's pigeon population?" \* Location \* Location\*\* Location\*\* Poland : doi 10.1007/s00284-022-03072-4)



5/6 #BOU2024 #break1 Are there spatial patterns of prevalence rate differences across the urban landscape of Antwerp? \*\* \*\* • #InfectionHotspots #UrbanLandscape



6/6 #BOU2024 #break1 Our study finds varying prevalence rates in Antwerp's #pigeons, revealing intriguing spatial patterns Our next step is linking this data with behavioural factors and urban features to uncover what drives this #disease dynamics/pattern. PS:

