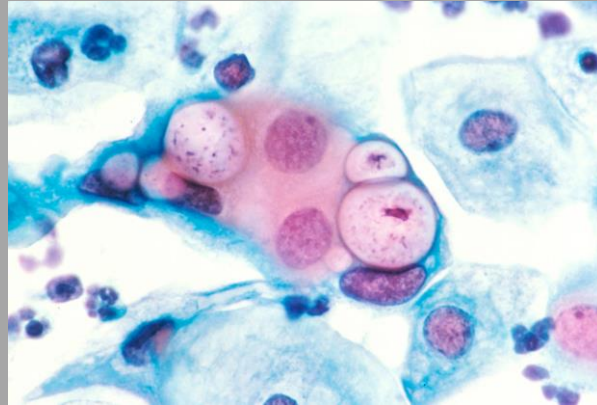




**BECO**  
Behavioural Ecology  
and Ecophysiology  
University of Antwerp





## Feral Pigeons (Antwerp)

- Disease transmission
- Movement ecology
- Urbanisation
- Individual variation

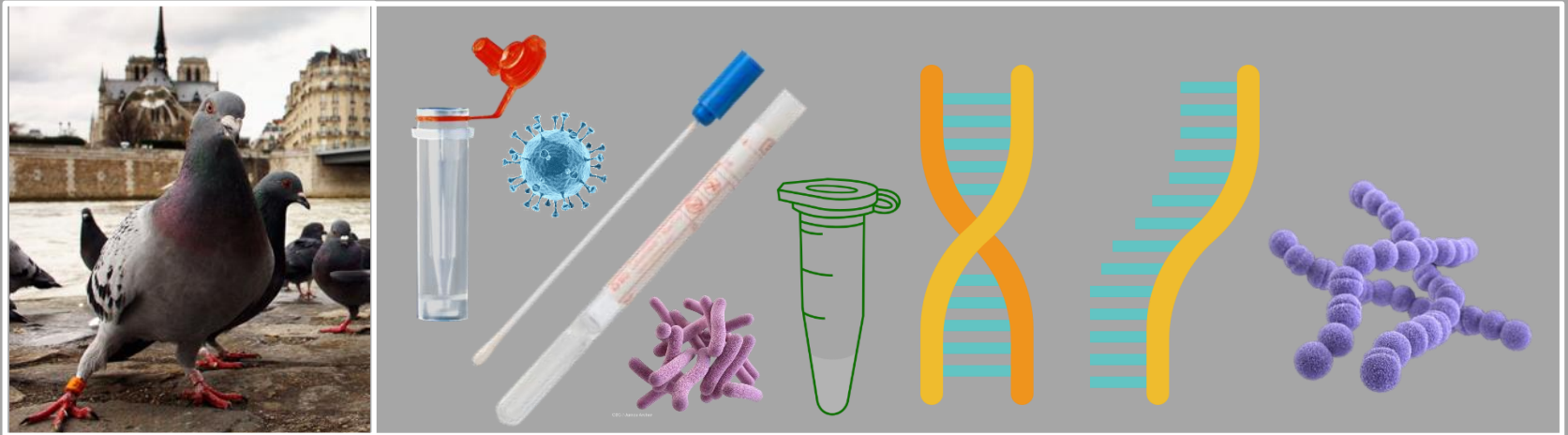
# Infection dynamics in the Anthropocene

## Tracking super spreaders and infection hotspots in the urban jungle



# Spatial variation in disease prevalence in urban environments

Cities offer a lot of feeding opportunities for wildlife, but these are often not equally distributed throughout the city. Clustering of resources can lead to high local pigeon abundances and hence a high risk of disease transmission. The aim is to search for and find these infection hotspots.



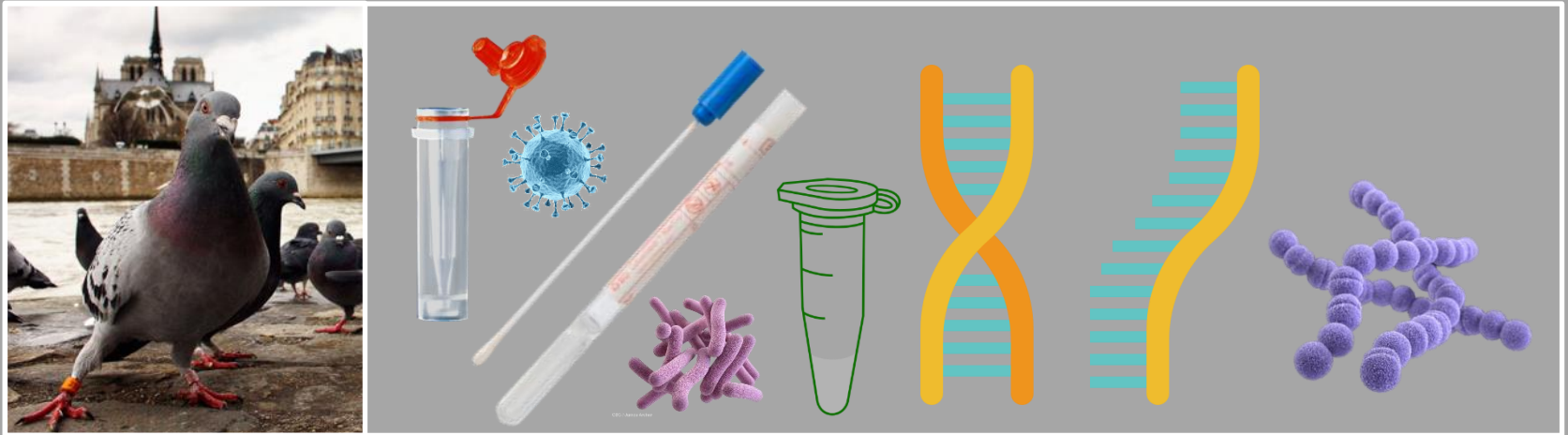
## Description of tasks:

- Catching and sampling of feral pigeons in the City of Antwerp
- DNA/RNA extractions, PCR, Sequencing
- Analysis of the spatial distribution of the disease



# Spatial variation in disease prevalence in urban environments

Community transmission. Pigeons are not feeding alone in the city. Most of the time pigeons will forage within the larger avian community. These species can also become infected and transfer the pathogen outside the city. However, it is unclear what the prevalences are in these animals.

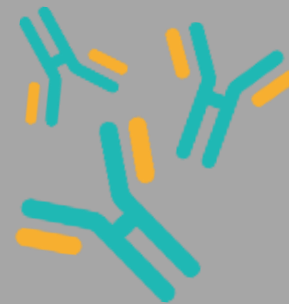


## Description of tasks:

- Catching and sampling **the whole avian community** in the City of Antwerp
- *DNA/RNA extractions, PCR, Sequencing*
- *Analysis of the spatial distribution of the disease*

# Immunity: not all pigeons will be equal

Becoming infected as well as the intensity of infection will depend on how well the immune system is functioning. Yet how and why differ individuals in immunity if that is such an important trait?



## Description of tasks:

- Catching and sampling pigeons
- *Analysis of immune parameters*
- *Analysis of infection status*



## Lesser black-backed gulls (Zeebrugge)

- Parental cooperation
- Foraging ecology
- Early development
- Individual variation







## On the spot: how to establish a territory?

- High breeding density areas are characterized by a higher breeding success. This suggests that there is a high level of competition to get and maintain these territories.
- By combining time lapse photography, behavioral observations and field experiments (manipulations of breeding density), we aim at understanding:
  - 1) how gulls invest their time to successfully establish a territory, offspring care and self-maintenance,
  - 2) how social interactions shape the acquisition and maintenance of territories, and ultimately
  - 3) relating those aspects to reproductive success

**Description of tasks:** Possibility to do fieldwork with wild seabirds (about 1 day per week during March and April). The rest of the year the work will be based at CDE. The student will receive support with statistical analysis.

**Contact:** [wendt.mueller@uantwerpen.be](mailto:wendt.mueller@uantwerpen.be)





## Canaries (CDE)

- Parental care
- Conflicts of interest
- Early development
- Cognition

# Conditions that may diminish the likelihood of the appearance of parental aggression

**30-40%** of female canaries start to **neglect** their chicks **or exert parental aggression** (feather plucking) towards their own nestlings before fledging.

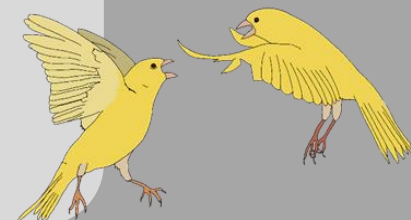
Are there any conditions that may diminish the likelihood of the appearance of parental aggression?

**Description of tasks:** behavioural response tests on female canaries (aimed at finding conditions that may diminish the likelihood of the appearance of parental aggression; ex: pairing with couples of their choice vs. forced mating, addition of physical enrichment...) and video analysis. The student will also receive support with statistical analysis of the data.

**Location and timing:** CDE, data collection in end of February/beginning of March-May (only MT)

**Contact:**

[Clara.GarciaCo@uantwerpen.be](mailto:Clara.GarciaCo@uantwerpen.be) or [wendt.muller@uantwerpen.be](mailto:wendt.muller@uantwerpen.be)





# Blue tits (CDE/Madrid)

- Parental care
- Maternal effects
- Conflicts of interest
- Social programming
- Animal personality
- Individual variation
- Cognition





# Maternal programming of offspring social phenotype



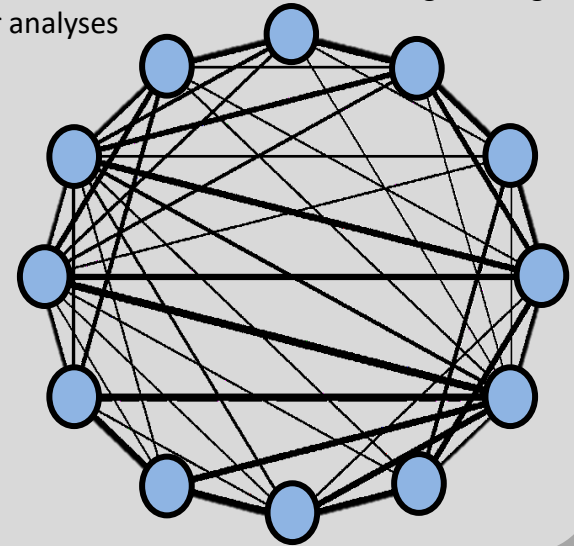
**Early life environment**, including the position in the **family social network**, has long-term **effects on the future fitness** of individuals. Mothers can **prepare their offspring to thrive better under specific conditions**.

Could **nestlings' social phenotype** be **programmed for a particular family size**? How much depends on the **expected family size** and how much on the **actual family size**?

**Description of tasks:** elaboration of matrixes of interactions between nestlings through observation of video recordings for posterior analyses using a social networks approach. The student will also receive support with statistical analysis of data.

**Location and timing:**  
CDE, end November-February  
(IP or MP possible)

**Contact:**  
[alejandro.garciaanton@uantwerpen.be](mailto:alejandro.garciaanton@uantwerpen.be)  
or [wendt.muller@uantwerpen.be](mailto:wendt.muller@uantwerpen.be)



# Causes and consequences of female aggression in wild blue tits

**Female** blue tits are known to be aggressive, yet female aggression remains greatly understudied. What drives aggressive behaviour, and what are its consequences for **fitness** and **nesting choices**? Do females become more aggressive as they invest more in the nest? In this project, you'll conduct **behavioural field experiments** and analyse a multi-year database on aggression. You will explore how female-female aggression and anti-predator hissing impacts **population density**, and how aggression evolves across **different stages** of the breeding season.

- Location fieldwork: Campus Drie Eiken
- Fieldwork timing: March – Early June
- IP project only
- Description of tasks:
  - Performing observational aggression tests on wild females
  - Measuring anti-predator hissing
  - Conducting nestbox checks
  - Analysing results from the field in R
- **Contact:** [Robin.vanlersel@uantwerpen.be](mailto:Robin.vanlersel@uantwerpen.be)







# Bonobos (Plankendael)

- Social Behaviour
- Stress
- Diet
- Individual variation





# How does maternal style influence sociality in bonobos (MP)

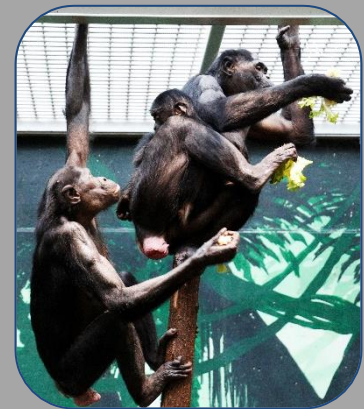
**Summary:** Preferred affiliative relationships, or social bonds, are essential to the social life of primates. Yet, little is known how these social dynamics develop. Maternal behavior has been suggested to shape these relationships by influencing infant exposure to the social climate and potentially the overall social competence of offspring. This project aims to link maternal styles to the social development of bonobo infants.

**Location and timing:** Include zoo-based observations of bonobos in summer-fall 2025. 2 weeks of training in Zoo Planckendael + 6-8 weeks observations in one European zoo abroad (Apenheul, Frankfurt, Wuppertal, Koln, Leipzig, Twycross)

**Description of tasks:** Behavioural data collection using group scan sampling, focal animal sampling and all occurrence sampling. Student needs own laptop to install observer software and fast and blind typing is CRUCIAL for success of this project

## Contact:

- Jonas Verspeek: [Jonas.verspeek@kmda.org](mailto:Jonas.verspeek@kmda.org)
- Daan Laméris: [daan.lameris@uantwerpen.be](mailto:daan.lameris@uantwerpen.be)



# The curious case of orangutan control

## (MP or IP (only video-coding))

**Summary:** An innate psychological need for humans and non-human animals is the ability to successfully engage with the environment beyond satisfying immediate needs, i.e. *agency*, by for example achieving goals. A fundamental aspect for an animal to experience *agency* is having control and overcoming challenges. This project aims to link flexible decision-making in zoo-housed orangutans using a multi-choice set-up, with their performance in a curiosity paradigm.

**Location and timing:** Include zoo-based observations of orangutans in Zoo Planckendael in summer-fall 2025 ( $\pm$  10 weeks observations).

**Description of tasks:** Behavioural data collection using focal animal sampling of orangutans interacting with a set-up that allows for increased environmental control; and video-coding of recorded curiosity experiments. Student needs own laptop to install software and fast and blind typing is CRUCIAL for success of this project.

### Contact:

- Jonas Verspeek: [Jonas.verspeek@kmda.org](mailto:Jonas.verspeek@kmda.org)
- Daan Laméris: [daan.lameris@uantwerpen.be](mailto:daan.lameris@uantwerpen.be)



# Handedness across contexts in bonobos

## Abstract

Cerebral lateralization is often reflected in an individual's behavioral laterality (e.g., handedness), where the degree of lateralization may have implications for various cognitive and affective processes. Behavioral laterality may therefore vary across tasks and contexts. Understanding these variations can provide insights into how the brain organizes functions like emotion, and decision-making. By studying lateralization in different settings, we can explore its potential role in adaptive behaviors.

**Location and timing:** Include zoo-based observations of bonobos in Zoo Planckendael (Mechelen) in summer-fall 2025. 2 weeks training + 8 weeks of observations

**Description of tasks:** Record different behaviours of bonobos across contexts. Recordings will be coded afterwards. A camera will be provided, but the student needs their own laptop to install coding software. Eye for detail, fast and blind typing is CRUCIAL for success of this project.

## Contact person

- Daan Laméris: [daan.lameris@uantwerpen.be](mailto:daan.lameris@uantwerpen.be)
- Jonas Verspeek: [Jonas.verspeek@kmda.org](mailto:Jonas.verspeek@kmda.org)







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