Prevalence and diversity of avian malaria parasites in domestic birds from North-western Uganda: Ecosystem health for biodiversity conservation

Jesca Nakayima 1, Eugene Arinaitwe 3, William Kabasa 2, Constance Agbemelo-Tsomofo 1, Leonce Kouakounou 2 and Taiwo Crossby Omontorigun 4, 5

Team: AVI-WEST

Background

- Increase human population can directly lead to habitat destruction and therefore loss in biodiversity
- Habitat loss has the potential to foster disease outbreak in natural population of animals (e.g. birds) due to increase in transmission of pathogens
- Pathogenic infection can induce the susceptibility /resistance of a host to other pathogens

Objective

Investigate the interactions among blood parasites, gastrointestinal parasites, ejaculate-born parasites on sperm quality and the mechanism underlying an immunomodulatory function in avian species.

Study area

- Ghana
- Benin
- Nigeria
- Uganda

Methodology and Project Progress

Blood samples Nigeria

Nigeria (Biosystematics)

Sperm collection
- Cloaca massage
- Fixation (5% formalin)

Blood samples

- Brachial vein (10-50 μl)
- Fixation (96% ethanol)
- 200 - 400 × mag
- 10 sperm/bird
- Head, midpiece, tail length

Blood samples

Ghana (wildlife ecology)

Blood samples

- Blood DNA, Fixed Thin blood smears
- Giemsa staining
- Microscopy
- Polymerase chain reaction
- Gel electrophoresis
- Sequencing

Uganda (Veterinary medicine)

Blood samples

- Brachial vein (1.2 ml)
- Fixation (96% ethanol)
- Giemsa stain, Microscopy-Avian Malaria Parasites. Molecular characterization.

Benin (Immunology)

- Blood DNA, Fixed Thin blood smears
- Giemsa staining
- Microscopy
- Polymerase chain reaction
- Gel electrophoresis
- Sequencing

Expected outcome

- Understand the role of deforestation in the diversity and distribution of pathogens in wild birds
- Understand the immune modulation in malaria infected birds
- Understand the impact of pathogen-pathogen interactions on fitness of birds
- Produce baseline data useful to the health sector and monitoring of biodiversity conservation

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References

1Noguchi Memorial Institute for Medical Research, Department of animal experimentation, University of Ghana, Ghana
2Laboratory of Biology and Molecular Typing in Microbiology, Faculty of Sciences and Techniques, University of Abomey Calavi, Benin
3National Livestock Resources Research Institute (NaLIRRI), Tororo, Uganda.
4AP Leventis Ornithological Research Institute, University of Jos, Nigeria, 5Natural History Museum, University of Oslo, Norway