

PREVIR: a multidisciplinary project contributing to epidemiological surveillance and the understanding of the biology of wild birds in Brazil within the context of One Health.

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Introduction

Infectious emerging diseases pose a threat to the human population, with over half of the involved pathogens having a zoonotic origin. The H1N1 and SARS-CoV-2 influenza pandemics were caused by zoonotic-origin viruses, underscoring the importance of the One Health concept, which emphasizes the interconnection between human health, the health of other animals, and the shared environment. As urbanization continues to rise, zoonoses represent a risk to public health and the economy. In this context, the Project "Virus Surveillance Network" (PREVIR-MCTI) aims to establish an active surveillance network to detect and analyze viruses with potential for emergence in various regions of Brazil, primarily focusing on bats and birds. Birds are sentinels for emerging zoonoses due to their global distribution and high dispersal capacity.

Objectives

In the face of the global spread of avian influenza and its threats, the data generated by PREVIR provide fundamental insights about:

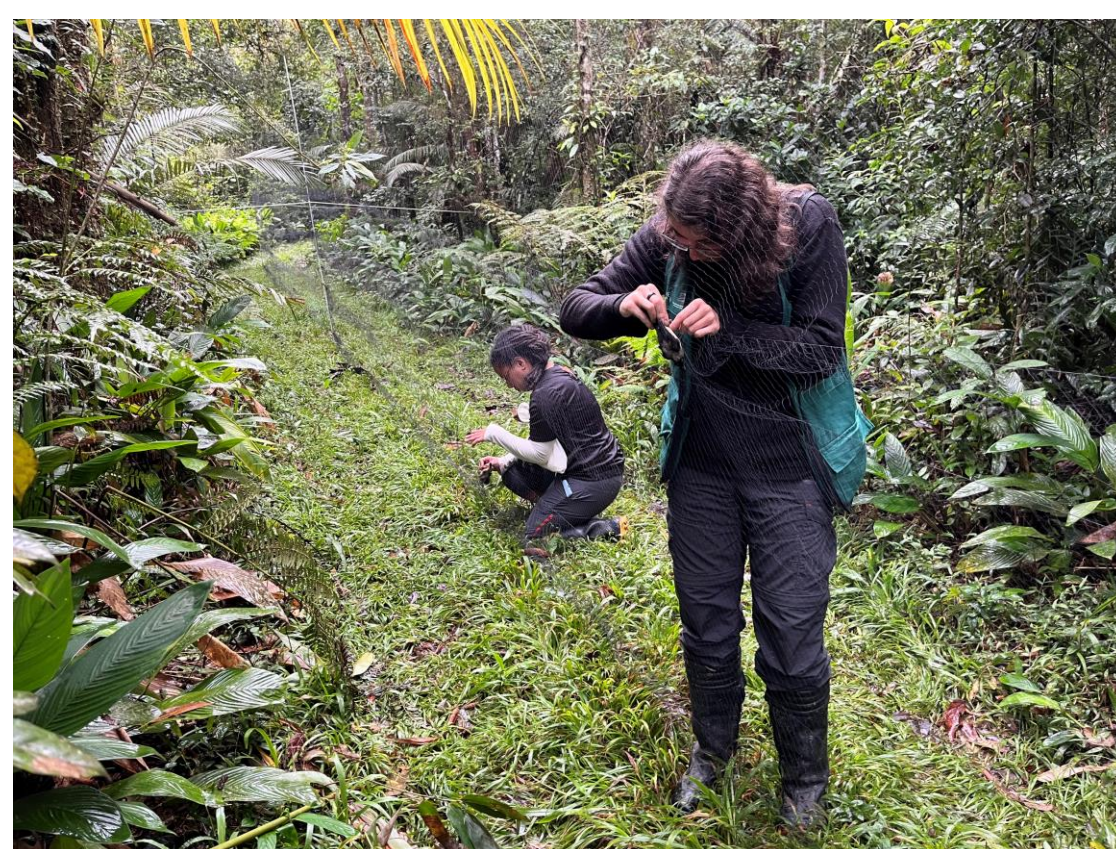
- Viruses associated with resident and migratory birds.
- Essential information about the biology, distribution, and migratory patterns.
- Training young field researchers.

Material and Methods

Study regions: Amazon and the Atlantic Forest, six states and 15 locations.

Period of activity: Continuously since 2019.

Field activities:



- Birds are captured using mist nets and ground traps.



- Biological samples are collected through oral and cloacal swabs, which are then stored in liquid nitrogen.



- Feather and ectoparasite samples are also collected and stored in paper envelopes and microtubes with alcohol.

Images: Marcus Azevedo and PREVIR Team



- The birds are marked with metal bands, biometrics are performed, ecological data is collected and released.

Fieldwork adheres to all biosafety and animal welfare protocols and standards.



- Biological samples are sent to specialized laboratories, and the determination of virus presence is based on molecular techniques for genetic material extraction, amplification, and sequencing.

Results

- 152 days of fieldwork.
- 1918 birds (354 species, 22 orders and 55 families) with biological samples collected. This diverse sample includes aquatic, migratory, and forest birds.



Some species of birds captured and sampled in the field.

- None of the analyzed samples have indicated the presence of zoonotic viruses.

Nevertheless, the project has been actively contributing to the production of data concerning the biology of these birds, including aspects such as reproduction, migration, plumage, and ectoparasites. Additionally, the project has played a crucial role in building capacity through the training of young field researchers.

Conclusion

It is essential to maintain and continue investing in multidisciplinary and multi-institutional projects like PREVIR, which are dedicated to establishing networks for epidemiological surveillance and advancing our knowledge of biodiversity in Brazil.

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