"Analysis of zoonotic pathogen presence among humans, mountain gorillas, and the environment in Bisate, Rwanda"

With the continued expansion of the global human population, the interactions between humans and gorillas are increasing. As a consequence, gorilla habitats are reducing in size and the potential of exposure to zoonotic pathogens are on the rise. Rwanda, in particular, is an ideal ecosystem to explore the consequences of this interaction because of the increasingly large, dense, poverty-stricken population that lives in close proximity to a group of endangered mountain gorillas. In partnership with the Dian Fossey Gorilla Fund International (DFGFI) and the Emory Global Health Initiatives, a deworming impact assessment will be conducted on primary school children (6-13 years old) in the Bisate catchment area in Rwanda. The impact assessment will include a fecal parasite survey, the collection of anthropometric data, and a survey to assess infection risk and morbidity related to enteric pathogen infections. About 40% or 800 children will be included in the impact assessment. We will also explore environmental routes of exposure by measuring soil contamination, analyzing fecal samples for the presence of pathogenic protozoa and bacteria, and integrating an educational component on water, sanitation and hygiene to advocate for a comprehensive understanding and treatment of enteric pathogen infections. This community closely borders the Volcanoes National Park, where more than half of the remaining mountain gorillas (approximately 480) in the world can be found. Human and mountain gorilla samples will be screened molecularly to determine if cross-infection of enteric pathogens is occurring. The assessment of the presence of enteric pathogens, especially those of anthropogenic interest, in the Bisate community will be incredibly valuable to the conservation efforts of the critically endangered mountain gorilla population and the poverty-stricken human population in this region.