

# Participatory Approaches in Conservation Medicine: A Case Study in Anthrax Management Near Queen Elizabeth National Park, Uganda



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## Introduction

Anthrax is enzootic within Uganda's Queen Elizabeth National Park (QENP) and the surrounding area, affecting wildlife, domestic animals, and humans. In just the last decade, outbreaks have caused deaths in wild animals in the parks, humans, and cattle.

A multi-disciplinary team of investigators from Makerere University African Field Epidemiology Network (AFENET) fellowship program, a biologist and TIE\* Fellow in the Masters in Conservation Medicine program worked together with senior veterinarian-scientists (see Acknowledgements) to assess the impact of anthrax on humans, wildlife, and domestic animals around QENP. Using a One Health approach, they focused on how humans and animals interact and how anthrax impacts the livelihoods and therefore the perceptions of conservation and public health efforts in the QENP area.

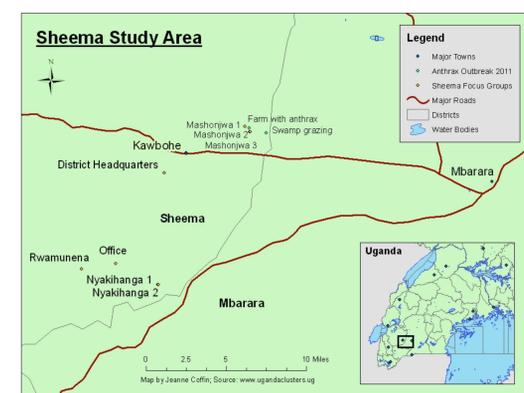
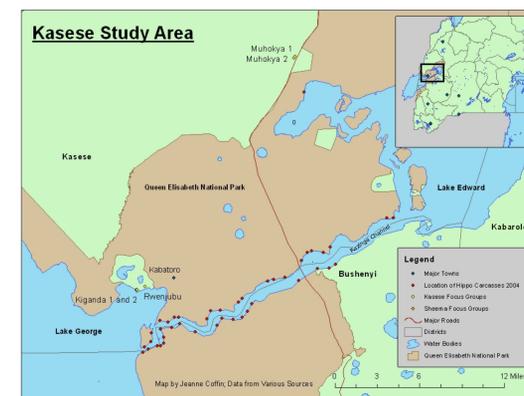
## Background

Anthrax is an ancient and virulent zoonotic disease caused by *Bacillus anthracis*. It has a complex natural ecology (1) involving sporulation, possible replication within amoebas (2) under specific climatic conditions, herbivorous consumption, and carnivore dispersal. Outbreaks are sporadic, but can be devastating as the bacteria can kill most non-carnivorous mammals.

The 2004/2005 QENP outbreak killed 306 hippopotamus, 143 other wild animals, and 405 domestic animals (3); a 2010 outbreak in QENP killed 154 wild animals (132 hippopotamus); and a 2011 outbreak in Sheema district temporarily halted local beef sales and killed 2 humans and 7 cattle. (4)

## Methods

- Mixed participatory epidemiology (PE) (5) and individual survey approach
  - Focus groups with mapping, ranking, and proportional piling exercises
  - Individual surveys
- Comparing results between participatory epidemiology and surveys to cross-check
- Assess perceived disease impacts, current surveillance efforts, and local conservation efforts in order to investigate anthrax's relative impact on livelihoods in the QENP area.
- Design future disease surveillance and management strategies



## Participatory Techniques

### Focus Groups



### Mapping



### Proportional Piling



Note: Variety of detail captured through the techniques.

Photo credits to Grace Asimwe-Karimu and Fred Monje

## Components of a Future Surveillance

### Survey for immunology

- Start in areas where anthrax has been reported, and look for titers in carnivores and/or people
- Expand to rings around it, and/or to areas implicated during PE sessions

### Survey for environmental risk factors

- Soil chemistry pH, moisture, calcium
- Presence of amoebas – needs further study
- Presence of spores

### PE for knowledge of environmental risk factors

- Educational
- Immediate feedback on local risk factors/areas

## Literature Cited

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## Expected Results

These findings will be used to propose a One Health approach to the management and prevention of anthrax through a network of stakeholders.

These proposals will be submitted to research partners, but portions are also intended for the participants.

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