

Strategies to Prevent Spillover (STOP Spillover)

Understanding and Mitigating Zoonotic Spillover Risks in the Wildmeat Value Chain in Sierra Leone

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Background

- In Sierra Leone, wildlife hunting and consumption are widespread. Wildmeat is an important source of protein in rural and urban communities, and has social and cultural significance. It also provides revenue for hunters and traders. However, wildlife also acts as a reservoir for various pathogens, including zoonotic diseases that can spillover to humans and trigger disease outbreaks. People involved in the wildmeat supply chain are at risk of contracting zoonotic infections through contact with the bodily fluids of diseased animals.
- The wildmeat value chain is complex, with a diverse array of participants and stakeholders, wildlife species, hunting techniques, cultural norms, political and socio-economic factors that contribute to its persistence. This complexity influences the risk of zoonotic disease spillover and transmission.
- Wild animal hunting is legal in Sierra Leone, except for CITES protected species and in protected forests
- The wildmeat value chain involves various stakeholders, including hunters, their family members, transporters, processors, traders and consumers. Limited information exists on the patterns and types of wildlife-human contact in communities that practice wildmeat hunting.
- Additional studies are needed to understand the wildmeat value chain, and the social drivers and associated risk factors that contribute to zoonotic disease spillover. Such studies could provide critical insights into the zoonotic spillover risks that these actors face. Such studies can also inform the design of socially, culturally and economically acceptable interventions to mitigate these risks. Without a thorough understanding of the wildmeat value chain and risk drivers, designing effective interventions to reduce risks among the various actors involved in the supply chain is challenging.

RESEARCH OBJECTIVE:

- The aim of the study was to understand and map the wildmeat trade in a high-risk interface in Eastern Sierra Leone. In addition, the study identified the type and frequency of wildlife species traded and consumed, and characterized the type and frequency of exposure to potential hazards (contact with animal species known or suspected to be filovirus hosts) along the wildmeat value chain. The risk drivers and factors that contribute to zoonotic spillover risks were also identified.

RESEARCH DESIGN:

- Formative research included qualitative data collection - Focus Group Discussions (FGDs), and Key Informant Interviews (KIIs) – as well as direct observations of wildmeat processors and traders in a wildmeat market in Kenema District.

RESEARCH LIMITATIONS:

- Direct observations were only conducted for processing, packaging and transportation of wildmeat to the market (not for hunting or consumption of wildmeat).
- Data collected is qualitative and specific to forest communities around the Gola Rainforest National Park (GRNP). Findings cannot be extrapolated to other parts of Sierra Leone or other potential interfaces.



Photo 1. Wildmeat for sale in a local wildmeat market in Kenema District, Sierra Leone

Methods

STUDY AREA:

- The study was conducted in eight communities in four chiefdoms around the Gola rainforest, plus the main wildmeat market in the city of Kenema (9 sites total).

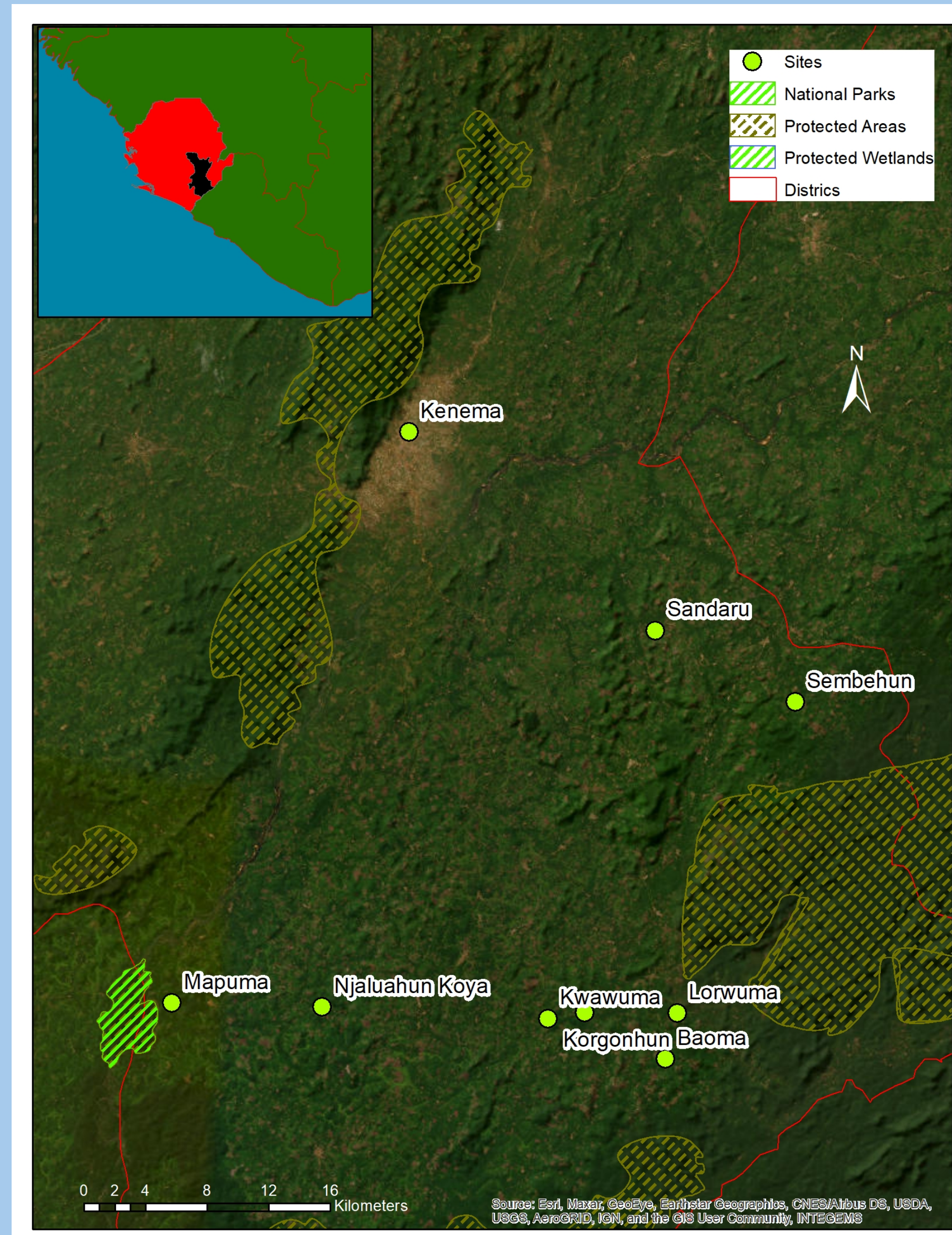


Figure 1. Map showing study areas in Eastern Sierra Leone

DATA COLLECTION, MANAGEMENT AND ANALYSIS:

- KII and FGD guidelines and tools were developed by STOP Spillover staff and One Health (OH) stakeholders.
- A community engagement meeting with key male and female stakeholders in each community was conducted to request their consent to participate in the study.
- 59 discussions were conducted in the study: 33 FGDs with 10 participants each across 9 sites (330 people, 54% women), and 26 KIIs across 9 sites. Focus group participants included hunters (men), wildmeat traders and processors (women). KIIs included traditional healers (men), chiefs (men and women) and community health workers (women and men).
- Data clustering was conducted using themes by respondent categories. Key components were combined in tabular and descriptive analyses used to synthesize key findings.

ETHICAL CONSIDERATIONS:

- The study protocol was approved by the Tufts University IRB and local ethical approval was granted by the Sierra Leone Ethics and Scientific Review Committee prior to data collection. Participants provided informed consent.



Photo 2. Wildmeat butchering in a local wildmeat market in Kenema District, Sierra Leone

Results

DRIVERS OF WILDMEAT HUNTING AND CONSUMPTION:

- The main drivers of wildmeat hunting, sale and consumption include food, medicine, economics (job/employment/livelihood/income) and cultural factors. Hunting is a major source of income in hunting households. Hunting revenue is used for many household needs including school fees. Wildmeat processing and retail sales are important livelihoods, especially for women in the wildmeat market in Kenema. Cultural practices and participation in traditional societies are important factors contributing to wildmeat consumption.

ROLES IN THE WILDMEAT VALUE CHAIN:

- Gender roles and responsibilities along the wild meat value chain are distinct, with men involved mostly in hunting and transporting wild meat, and women involved in wild meat processing and trading.

TRENDS IN WILDMEAT HUNTING

- Wild meat hunting has shifted over the years from subsistence hunting for food and gifts, to hunting for profit. Reported means of capture are similarly diverse and include use of shotguns, snares, trained hunting dogs, traps, and nets. Hunting techniques used and the types of animals captured vary during the rainy season and the dry season. Urban demand for wild meat increases during holidays and festivals.
- The most common types of animals hunted and consumed included deer, duiker, bushbuck, grasscutter, porcupine, squirrel, groundhog, hedgehog, bush pig and rabbit. Forbidden animals for religious or cultural reasons include lizards, monkeys, chimpanzee and bush pig.

- EXPOSURE RISKS:** Hunters, cooks, traders, processors, and transporters come in direct contact with wild animal urine, feces and blood. The highest risk actors along the wildmeat value chain include hunters (mostly young men) and wild meat processors (mostly women in the Kenema market). However, all actors along the value chain come into contact with wild animal feces, saliva and bodily fluids to some degree.

Conclusions

- Wildmeat consumption is a major source of protein particularly in rural communities, with impacts on food insecurity, employment, and income. These impacts vary by gender, but are important to both men and women throughout the value chain.
- Contact with animal feces and fluids (e.g. urine, blood, saliva, intestinal contents) occurs throughout the value chain, from the point of hunting in rural areas to the processing and sale of wildmeat in urban areas.
- Wildmeat processors and traders proposed testing different protective measures including the use of PPE (boots, aprons, face masks and gloves) as well as handwashing with soap before and after processing meat, to reduce spillover risks.

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