

Strategies to Prevent (STOP) Spillover

Impact Brief

Sierra Leone

Lassa Virus Research Study in Sierra Leone

Activity I.2.6.1: Rodent trapping to determine the seasonal abundance of rodents and changes in Lassa Virus prevalence around Gola Rainforest communities.

INTRODUCTION

This study is designed to better understand Lassa virus spillover risks in high-risk interfaces (rural forest-edge communities in South Eastern Sierra Leone, along the Gola Rainforest) and to identify ways to reduce the risk of Lassa virus spillover in these communities, especially in the face of potential climate change impacts. IRB approval was requested and received for this activity in August 2023 from the Sierra Leone Ethics and Scientific Review Committee and Tufts University.

In September 2023, STOP Spillover trained a team of field ecologists in rodent trapping, identification, sample collection, rodent release, and sample storage, with support from a rodent ecologist from Tufts University and ecologists from Njala University. Following classroom training, the team conducted rodent trapping in eight communities around Gola Rainforest in Kenema district, to better understand environmental variables that influence rodent abundance in these communities.



Figure 1: Rodent Trapping Training Session

Initial Outcomes

- Four (4) Field Ecologists trained.
- Trapped 126 rodents in eight communities (33% *Mastomys*).
- Collected 374 samples from captured rodents.
- Marked and released all captured rodents.
- Stored samples collected at -70 degrees C.



Figure 2: Collecting Rodent Samples in the Field

Initial Findings

Table 1: Data from First Round of Rodent Trapping in Gola Rainforest, September 7 – 30, 2023

Chiefdom	Community	Total trap effort (trap nights)	Houses targeted	Rodents captured			Total Rodents	Trap success (trap nights/capture)	Samples collected
				<i>Mastomys</i> spp.	<i>Rattus rattus</i>	Shrew			
Tunkia	Belebu	375	25	9	10	1	20	5.33	57
	Gegbewema	510	34	12	9	0	21	4.12	62
	Kongohun	297	25	13	1	0	14	4.71	42
	Gorahun	450	30	2	17	0	19	4.22	57
Koya	Baoma	450	30	1	15	0	16	3.56	48
	Borgbaubu	315	21	2	9	0	11	3.49	33
	Njalahun	207	14	1	11	0	12	5.79	36
	Mapuma	135	9	2	11	0	13	9.62	39
Total		2739	188	42	83	1	126	4.60	374

- The overall trapping success was 4.6 trap nights per rodent captured.
- Mapuma had the highest trap success, followed by Njalahun.
- We identified both *Mastomys* sp and *Rattus* sp in all communities visited.
- *Mastomys* sp was dominant in 2 of the 8 communities visited.
- Gegbewema (21) and Belebu (20) had the most rodents captured.
- Additionally, one shrew was found in a house together with other species of rodents.

Next Steps

- Upload field data to the cloud.
- Finalize arrangements with Njala University and the Central Veterinary Laboratory at Teko for laboratory testing of rodent samples for Lassa virus.
- Procure Lassa virus test kits.
- Confirm field species identification in the lab using DNA barcoding.
- Conduct another round of rodent trapping in December 2023.



Figure 3: Team at Rodent Trapping Training