



Lassa fever seroprevalence in three southern Nigerian states: A cross-sectional survey within the SCAPES project



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Background and objectives

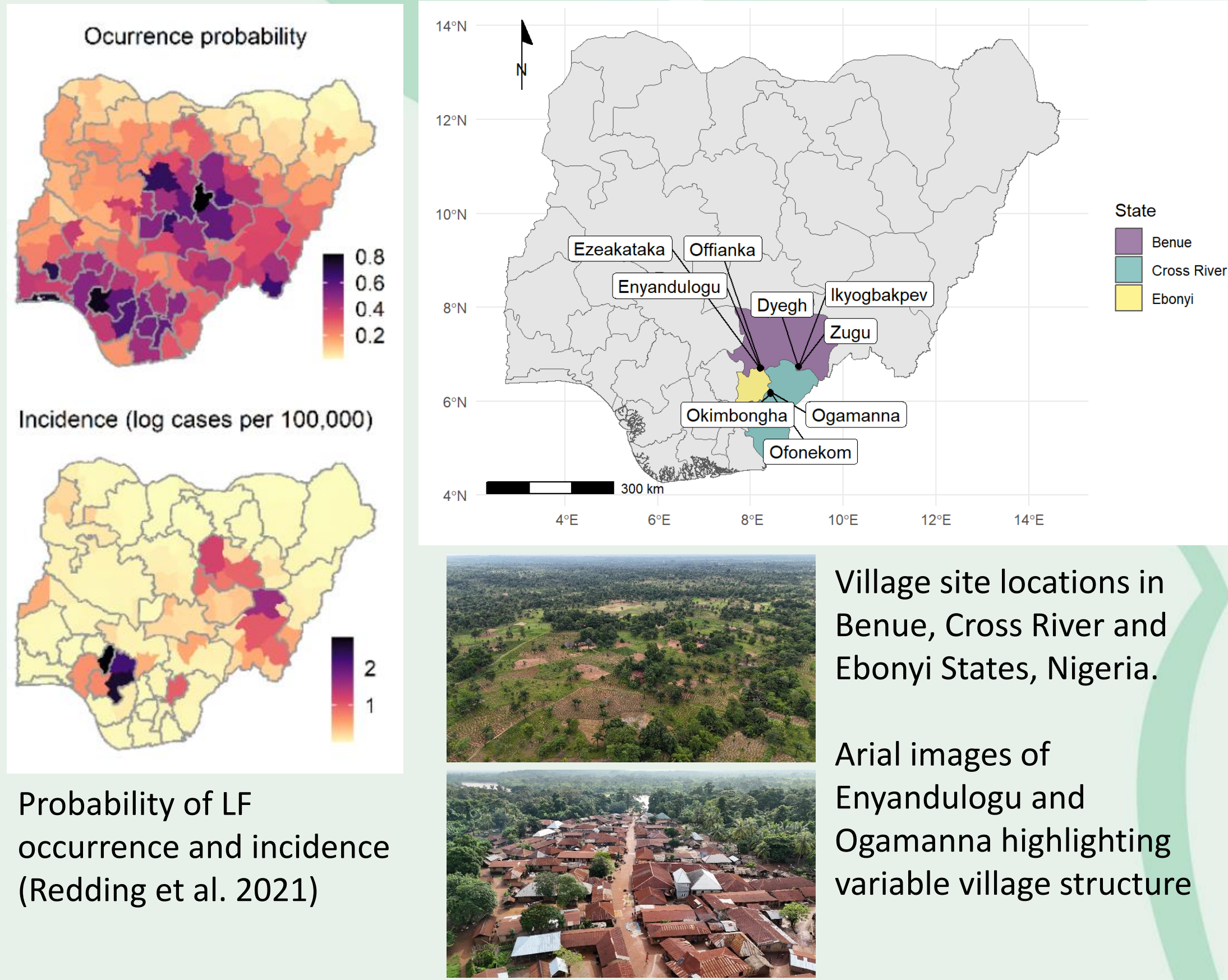
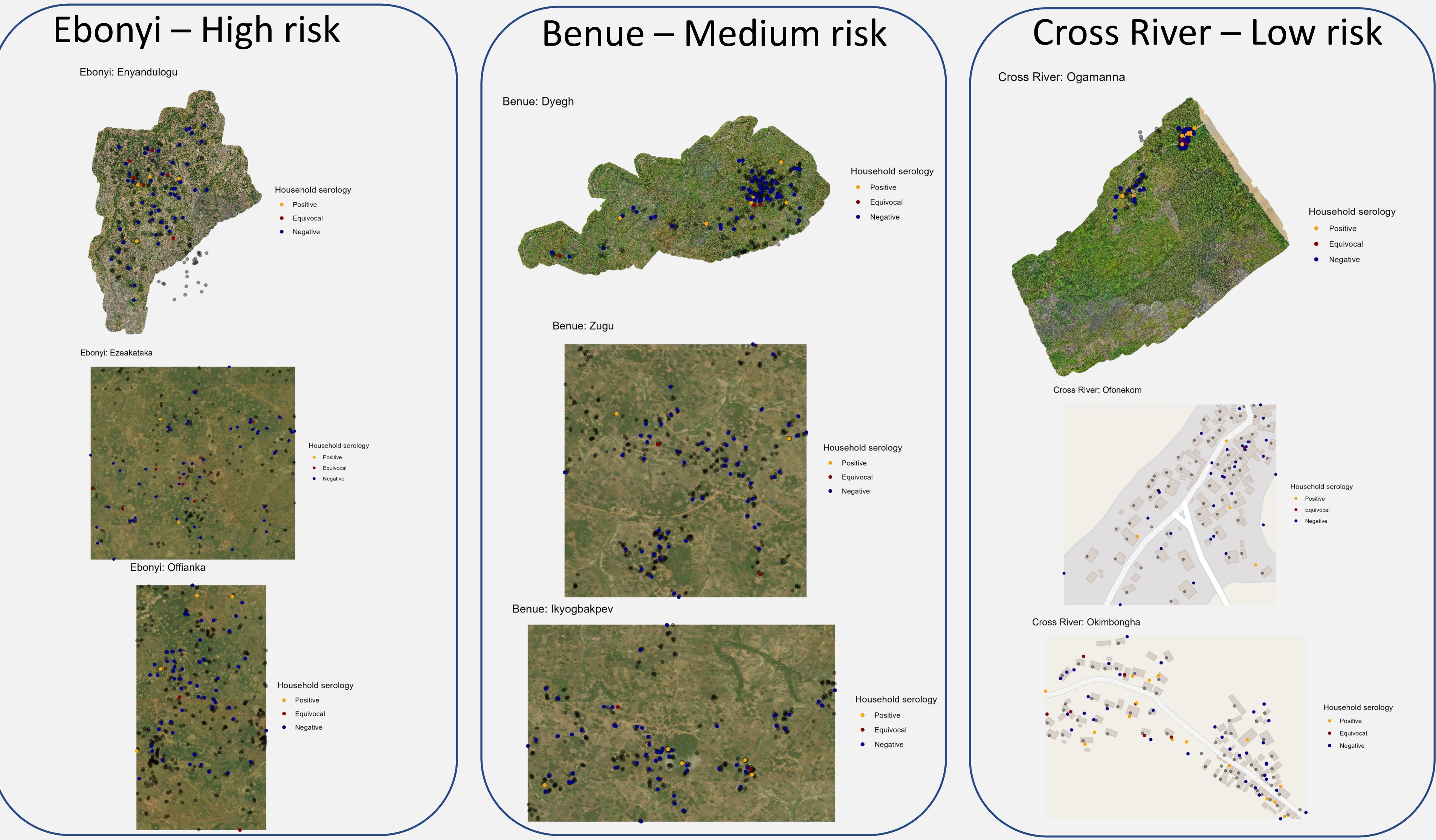
Mammarenavirus lassaense (LASV) is a viral zoonosis endemic to West Africa and causes Lassa fever (LF). Outbreaks of Lassa fever are dominated by spillover from rodent hosts to humans in rural settings.

Environmental and ecological conditions strongly influence LASV transmission among rodents. Socio-ecological factors, including human behaviour are expected to moderate the hazard of human infection in endemic settings.

We aimed to investigate LASV exposure in residents across nine communities in three neighbouring Nigerian states along an expected gradient of high, medium and low risk regions to:

- 1. Estimate LASV seroprevalence
- 2. Characterise individual- and household-level behaviours associated with seropositivity
- 3. Explore spatial heterogeneity in LASV exposure

Community structure and spatial distribution of seropositivity



Results

Between 16 December 2023 and 22 July 2024, we enrolled 1,926 individuals from 577 households, representing 27% of all households (577/2,129) in the study villages.

Of **1,874** individuals tested, **61** were seropositive. None reported a prior diagnosis of LF. Seropositive individuals came from 59 households, with two households (both in Ikyogbakpev) containing >1 seropositive individual. Estimated LASV IgG seroprevalence were highest in Cross River State (**5.15%**, 95% Credible Interval [CrI]: 3.66–7.07), followed by Benue State (**2.6%**, 95% CrI: 1.54–4.09), and Ebonyi State (**1.62%**, 95% CrI: 0.86–2.83).

Household composition and structure varied significantly across sites. Median household size was largest in Benue (7) and smallest in Cross River State (5). Households typically comprised multiple buildings, with single-room structures more commonly used in Benue and Ebonyi than in Cross River. Proximity to bush and farms was common but varied by location (51% near bush, 66% near farms overall).

Rodent entry into homes was near universal (94%), the methods used to control them varied significantly across villages. **Rodents killed in buildings were rarely consumed or sold (<5% and 0.5% respectively).**

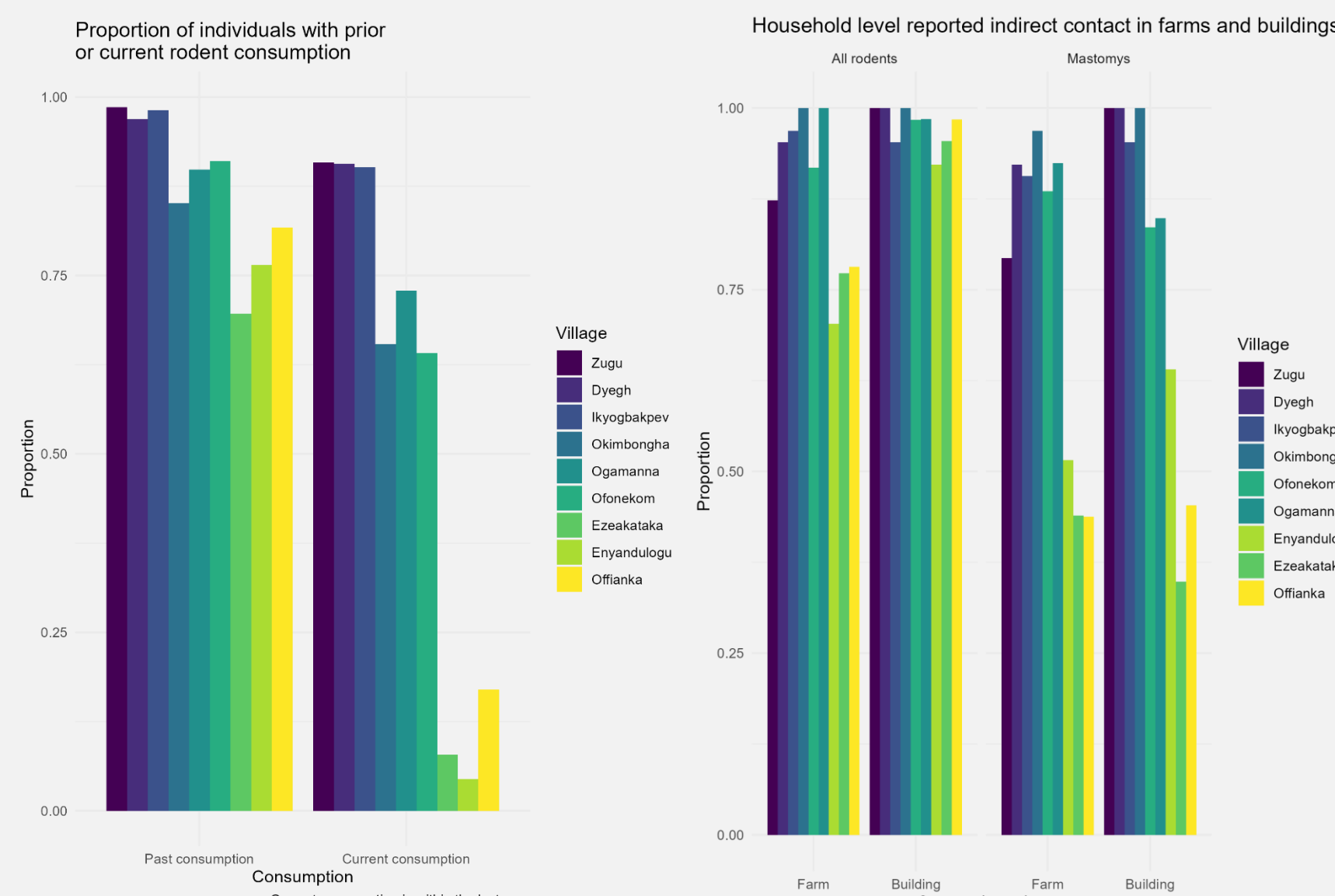
Rodent consumption in the past year was common in Benue and Cross River villages (>62%) but substantially lower in Ebonyi villages (<17%) although in those locations most individuals reported past rodent consumption (>67% of those who had not consumed rodents in the past year). Taste and availability of rodent meat was the most reported reason for current and past rodent consumption.

No *a priori* risk factors were found to be associated with seropositivity in univariable analyses.

State and Village level LASV IgG prevalence

State/Village	N sampled	N positive	Prevalence (%)	95% CrI	Posterior
Benue					
Dyegh	605	16	2.60	1.54-4.09	
Ikyogbakpev	213	6	2.67	1.1-5.47	
Zugu	210	8	3.68	1.7-6.82	
Cross River					
Ofonekom	182	2	0.94	0.18-3.22	
Ogamanna	654	34	5.15	3.66-7.06	
Okimbongha	180	5	2.61	1-5.7	
Ebonyi					
Enyandulogu	231	13	5.50	3.04-9.09	
Ezeakataka	243	16	6.46	3.85-10.09	
Offianka	658	11	1.62	0.86-2.83	

Consumption and contact with rodents



Discussion

- We found substantially lower seroprevalence than expected in settings considered high risk for LASV spillover.
- We did not observe any clear associations between risk factors and serological status in our sampled population
- We did not identify substantial clustering of seropositivity within households or within villages

Read more about the SCAPES project here

