

COMMUNITY-BASED SOCIO-ECOLOGICAL RESEARCH TO UNDERSTAND AND PREVENT ZOOONOTIC DISEASE SPOILLOVER IN THAILAND

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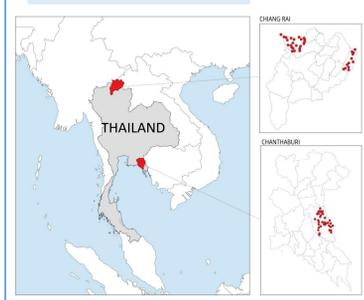
INTRODUCTION

Interactions between humans, vectors, and zoonotic host animals in different interfaces determine the risk of infectious pathogen transmission and its distribution in the population. Understanding these socio-ecological interactions allows for development of more effective and context-tailored intervention measures and policy recommendations to prevent zoonoses and safeguard human and animal health. The project is done in rural communities in Chiang Rai and Chanthaburi provinces, Thailand, which constitute important case settings for advancing current research, given their rich biodiversity and predominance of nature-dependent economic activities among local populations.

METHODS

Our transdisciplinary research integrates sociological mixed-methods approaches with biological sampling, including nasal and rectal swabs from wild and domestic animals and human serum specimens. Zoonotic viruses are screened using multiplex-qPCR and next-generation sequencing, followed by ecological, epidemiological, and evolutionary modeling. Our implementation research includes the co-development, implementation, and evaluation of context-sensitive interventions that enhance pandemic literacy, foster trust, and build local ownership.

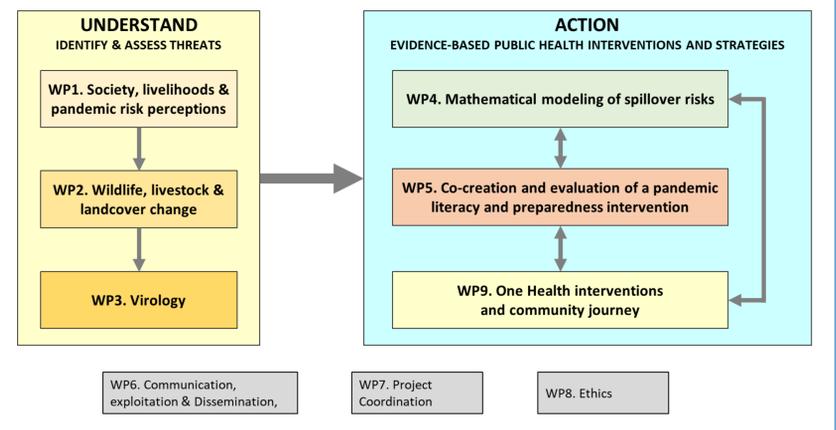
STUDY SITES



OBJECTIVES

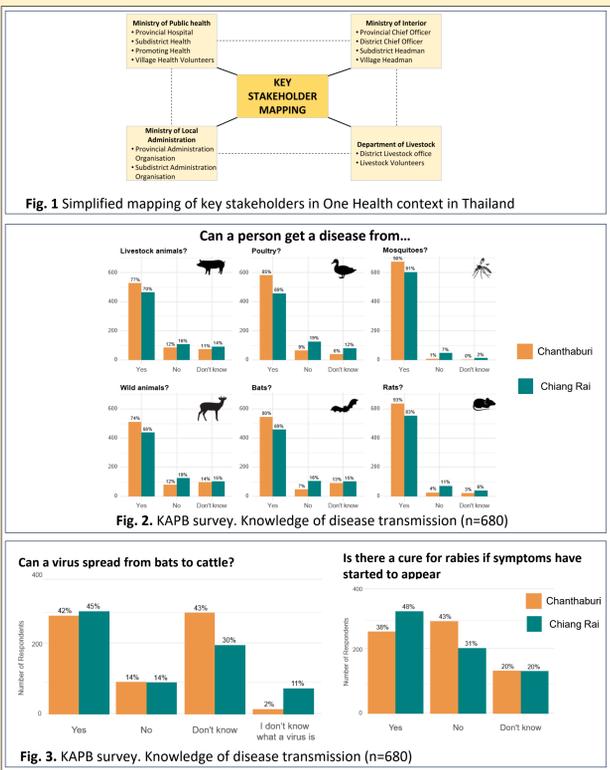
- 1) Understand emerging threats to human health
- 2) Develop and implement evidence-based interventions and tools for better public health measures

PROJECT COMPONENTS & WORK PACKAGES

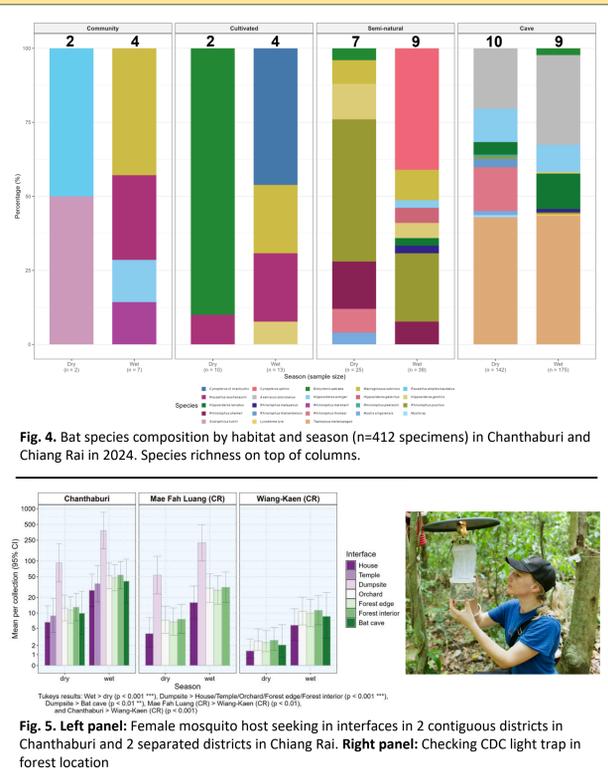


RESULTS

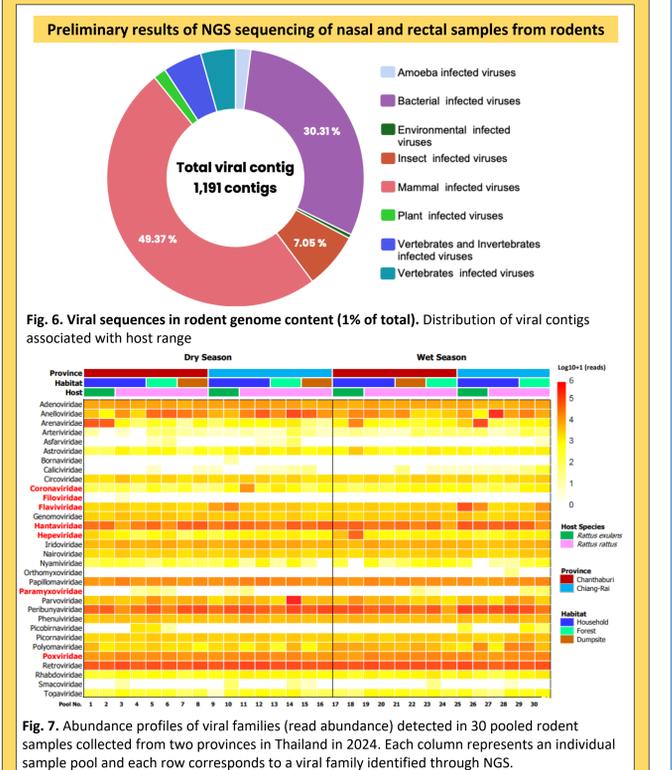
WP1. Human and social factors



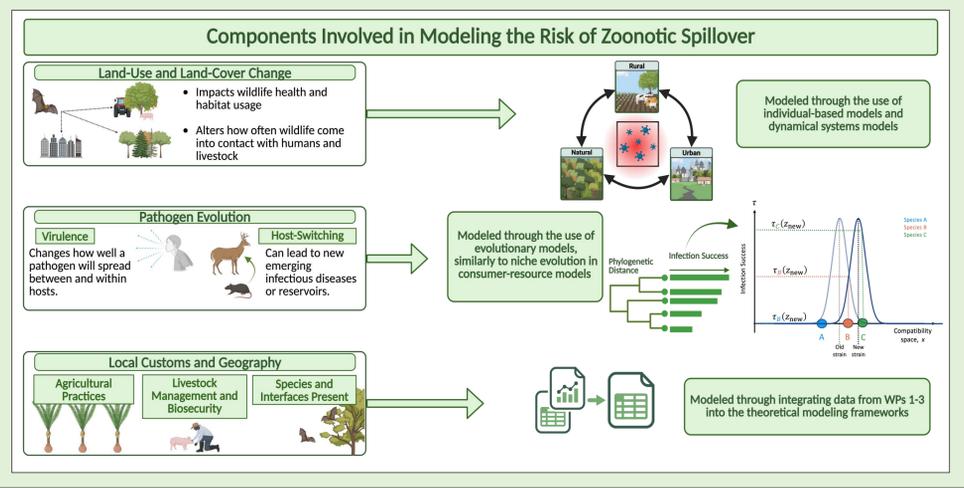
WP2. Wildlife and mosquitoes



WP3. Virology



WP4. Mathematical modeling of spillover risks



WP5. Co-creation and evaluation of the Saan Suk intervention

Community-Tailored One Health Educational Intervention (**Saan Suk**) to Enhance Knowledge and Practices for Zoonotic Disease Prevention in Rural Thailand: a Cluster RCT in 2026

Primary objective: Evaluate the effects of Saan Suk to enhance knowledge and practices for zoonotic disease prevention.

Secondary objectives: Assess the impact of Saan Suk on self-reported behaviors, attitudes, and contacts with zoonotic disease hosts. Saan Suk will also assess performance and cost evaluation of the intervention.

Study design: Prospective, parallel-arm, cluster-randomized superiority trial, 1:1 allocation ratio, conducted among adult rural population of Chanthaburi Province, Thailand in 2026. Randomization unit is village.

Primary outcome assessment: Self-reported knowledge about zoonotic diseases and pathogen spillover, understanding of transmission pathways for different zoonotic diseases, and preventive and risky behaviors compared to current practices. Measured as a score on an interviewer-administered test.



CONCLUSION

PANDASIA will improve understanding of pathogen circulation in global hotspots by analyzing how biological drivers of spillover interact with social conditions, human behaviors, and environmental impacts on wildlife. This integrated approach will generate evidence to model and prevent spillover risks. It will strengthen pandemic and One Health literacy, helping citizens and health professionals better recognize disease threats. PANDASIA will also provide new surveillance indicators and strategies for early detection and treatment and develop a point-of-care virus test kit prototype for global use. By addressing disease risks at their source, PANDASIA will enhance public health understanding, communication, and evidence-based responses.

The PANDASIA Partners

