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## One Health in practice: a socio-ecological approach for the study and management of zoonotic diseases associated with free-roaming dogs in Southeast Asia (SEAdogSEA)

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# One Health in practice: SEAdogSEA!

*A socio-ecological approach for the study and management of zoonotic diseases associated with free-roaming domestic dogs in South-East Asia*

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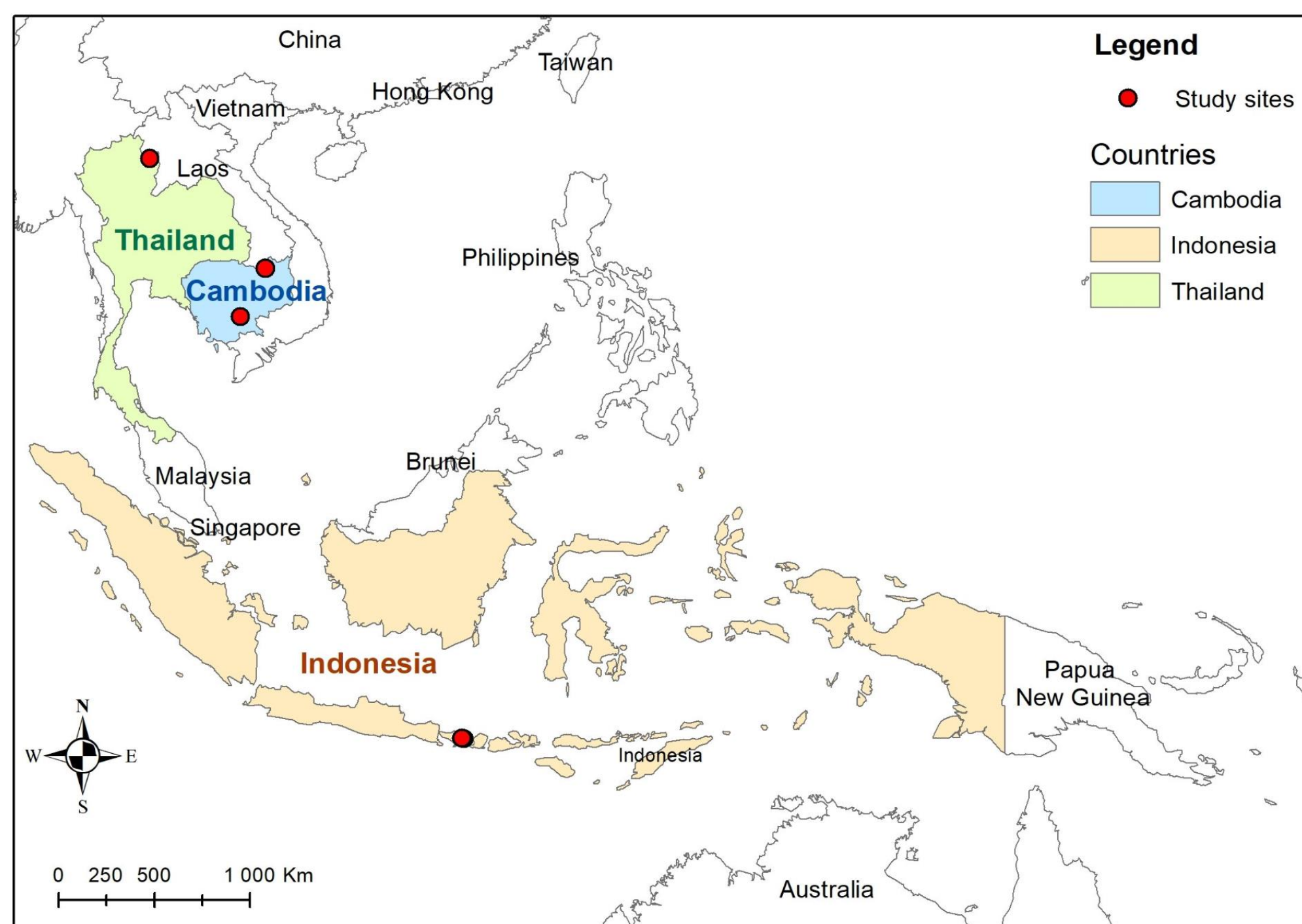


## Context

Dog was the first domesticated species by humans, interacting as commensal in human societies for more than 30,000 years. Domestic dogs provide multiple (socio-economic, cultural, recreational...) benefits, while also negatively impacting on the health of Humans (zoonosis, NTD), of other domestic animals, and of the environment (including wildlife). Widespread free-roaming dog populations in SE Asia call for integrated innovative One Health research-action and management.

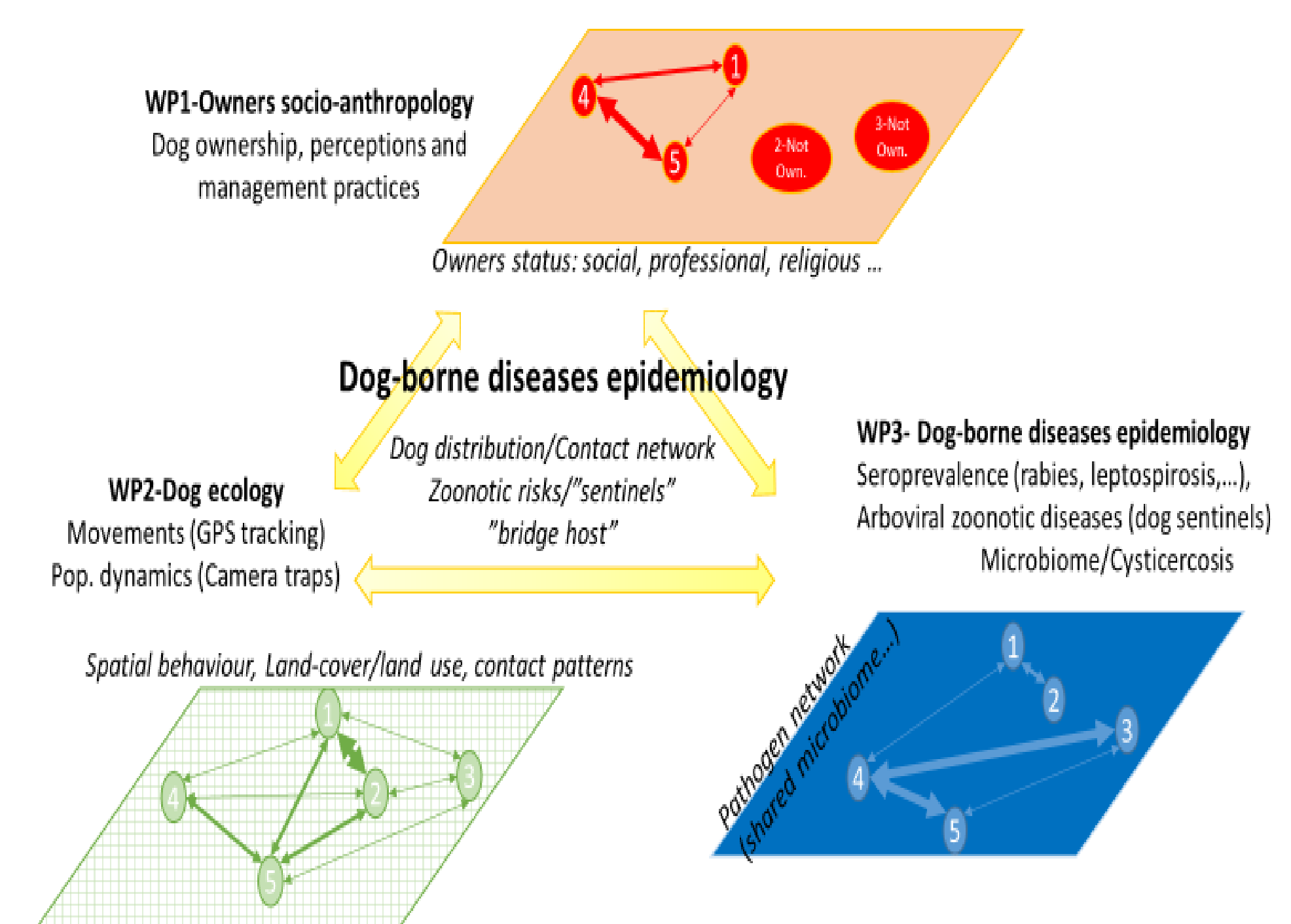
## Map of study sites

Five rural and semi-urban sites in Cambodia, Indonesia and Thailand



## SEAdogSEA approach

Identify social and ecological drivers of dog-associated diseases epidemiology



## Participatory and AI-assisted monitoring of dog populations



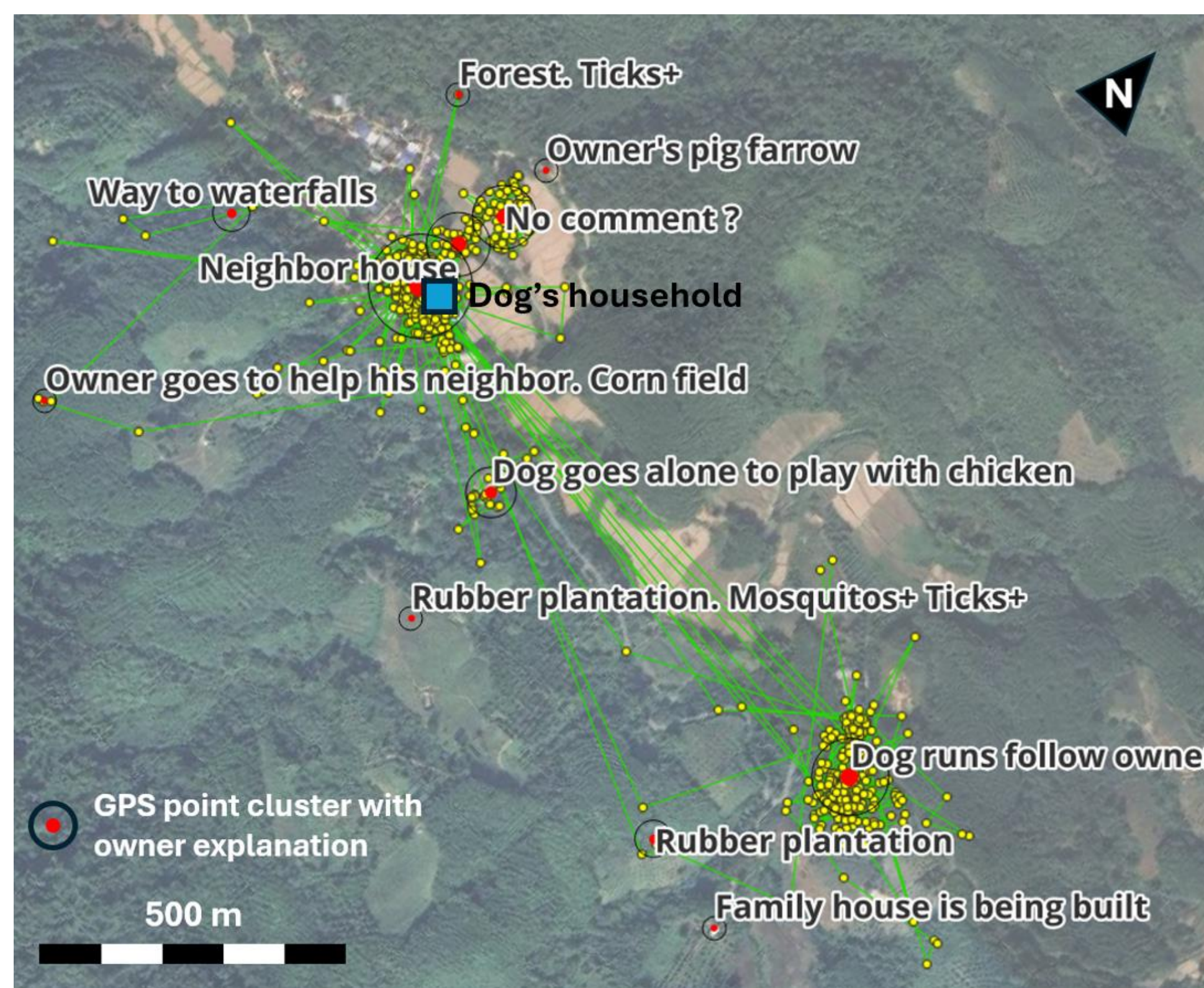
Detection, identification, and re-identification of free-roaming dogs using AI to analyse images captured in uncontrolled field conditions by participatory camera trap protocols in rural and semi-urban areas



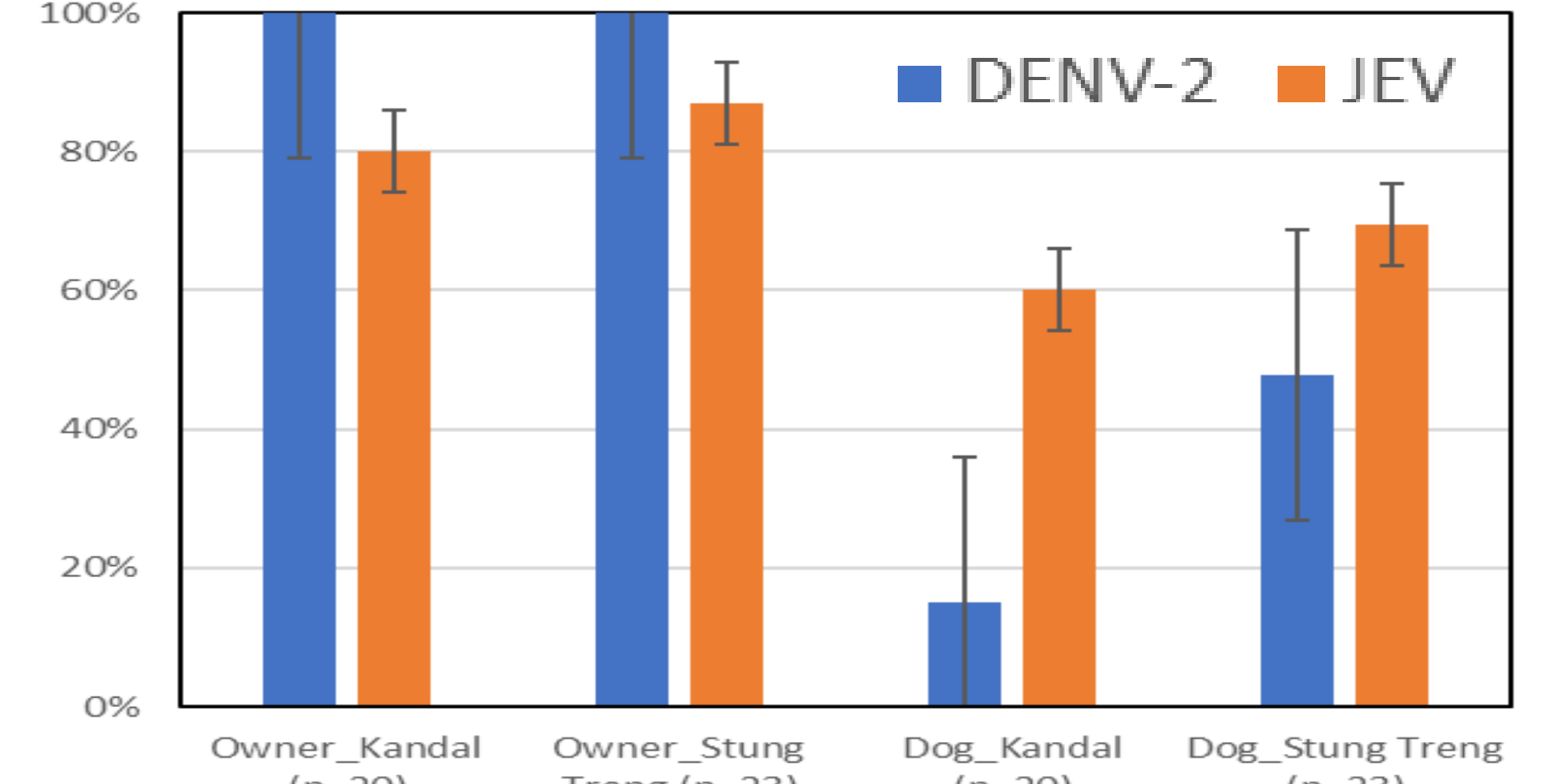
Pictures of dogs taken by camera in the village of Sibetan (Bali, Indonesia), analysed/clustered by AI

## Social-ecological analysis of dog movements and owner activities

65 GPS tracking of dogs for 1 month over 6 recording sessions spanning a 4-year period, with mapped explanatory comments from owners about their activities and movements. Identification of 3 profiles of canine movements determined by ecological and social factors.



## Prevalence of parasites in dog owners and their dogs



Blood samples were collected from dog owners and their dogs in two villages from Kandal and Stung Treng provinces (Cambodia).



A quantitative high-throughput Foci Reduction Neutralization Test (FRNT), requiring at least a 90% reduction of viral infection for a positive result, was conducted using dengue virus serotype 2 (DENV-2), Japanese encephalitis virus (JEV).

## Affiliations and Sponsors

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## Way forward

The results, methods and tools developed in SEAdogSEA will contribute to assess the potential use of dogs as sentinels of owners's infectious risks, and improve field-based dog management by targeting dog individuals most likely to get infected and spread pathogens to humans and other animals, including wildlife.