Specialists vs. Generalists in Thai limestone karsts: Comparative phylogeography of two Murinae rodents in Thailand

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Comparative phylogeography of co-distributed taxa enables biologists to assess the combined effects of environmental history and species-specific ecology in shaping genetic diversity across a landscape. In this study, we compared the phylogeographic structures of two Murinae rodents regularly recorded in karsts of Thailand: *Leopoldamys neilli*, a karst endemic species, and *Rattus tanezumi*, a generalist species, using both mitochondrial and nuclear markers.
The genetic structures of these species are highly contrasting. A strong phylogeographic structure is detected by both mitochondrial and nuclear markers for *L. neilli* but such pattern is not observed for *R. tanezumi*. The mitochondrial DNA diversity of *R. tanezumi* is geographically unstructured suggesting that all populations of these species are tightly connected genealogically. However, the nuclear loci detected a shallow east/west genetic differentiation for *R. tanezumi*.
Our study demonstrates that differences among phylogeographic structures of specialist and generalist rodents are important and are probably linked to the levels of isolation of their habitats. However our study also proved that some geological events such as the formation of the Central Plain of Thailand may have had a common influence on Murinae species with various levels of ecological specialization.