

Rodent outbreaks in the uplands of Laos: analysis of historical patterns and the identity of *nuu khii*

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Abstract. Rodent outbreaks in the uplands of Lao PDR (Laos) are understood by traditional farmers to be triggered by the episodic and synchronised flowering and seeding of certain bamboo species. Historical data from 24 districts spread across four provinces indicate that these outbreaks have been a feature of the upland agricultural environment for at least 50 years. Although many outbreaks appear to be fairly local in scale, records from Luang Prabang and Oudomxay provinces appear to document at least one widespread and prolonged outbreak, over the period 1988–1993. Somewhat surprisingly, there is no suggestion that rodent ‘outbreaks’ have become more frequent in recent times, contrary to widespread reports that the level of chronic rodent damage to crops has increased over the last decade. This apparent ‘uncoupling’ of trends in rodent outbreaks and agricultural crop losses adds weight to the traditional perception that the outbreak events owe their origin to factors outside of the agricultural systems.

A variety of rodent species are probably involved in the outbreak events. The identity of the ethnotaxon *nuu khii*, literally the ‘rat of bamboo flowers’, remains somewhat enigmatic. In some areas *nuu khii* may refer to one or more species of primarily forest-dwelling rat. However, in other areas, this term appears to describe an ecological phenomenon, namely the eruptive increase of forest rodent populations, with subsequent outpouring into adjacent agricultural landscapes.

The historical records do not help identify the cause of the rodent outbreaks. The pattern of outbreaks shows no clear association with generalised El Niño Southern Oscillation cycles, and with the exception of one geographically widespread outbreak in 1988–1993, there is little to suggest a regional climatic influence of any kind. The traditional belief that rodent outbreaks occur in response to bamboo flowering events is plausible in terms of the general biology of Southeast Asian bamboos, but the historical data do not allow for any direct test of this proposition. Much more information is required on the identity, distribution and phenology of Lao bamboo species, and on the impact of mast-seeding events on small mammal communities in the Lao uplands, before this interesting and economically important ecological phenomenon can be properly assessed.