



## A new species in the *Tylototriton asperrimus* group (Caudata: Salamandridae) from central Laos

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### Abstract

A new species in the morphologically conservative *Tylototriton asperrimus* group is described from Khammouan Province, Laos. Molecular phylogenetic analysis of mitochondrial DNA confirms its placement in the *T. asperrimus* group. *Tylototriton notialis* **sp. nov.** is diagnosable in mitochondrial DNA, nuclear DNA, and morphology from its congeners. The new species represents the first record of the genus from Laos, and is the southernmost known member of the *T. asperrimus* group.

**Key words:** Caudata, Laos, Southeast Asia, *Tylototriton*

### Introduction

The Asian newt genus *Tylototriton* Anderson, 1871 contains eight species (Dubois & Raffaëlli 2009) distributed from Nepal to northern Vietnam. These eight species consist of two clades, the *T. verrucosus* group (= subgenus *Tylototriton* Dubois & Raffaëlli 2009) containing *T. verrucosus* Anderson, 1871, *T. kweichowensis* Fang & Chang, 1932, *T. taliangensis* Liu, 1950, and *T. shanjing* Nussbaum, Brodie & Yang, 1995 and the *T. asperrimus* group (= subgenus *Yaotriton* Dubois & Raffaëlli 2009) containing *T. asperrimus* Unterstein, 1930, *T. hainanensis* Fei, Ye & Yang, 1984, *T. wenxianensis* Fei, Ye & Yang, 1984, and *T. vietnamensis* Böhme, Schöttler, Nguyen & Köhler, 2005. The monophyly of the genus and two subgenera has been demonstrated (Weisrock *et al.* 2006).

The genus *Tylototriton* has not been reported from Laos, although it is expected there based on its occurrence in adjacent parts of Thailand, China, and Vietnam. The only salamandrid known in Laos with certainty is the restricted range and endemic *Laotriton laoensis* (Stuart & Papenfuss 2002). Our fieldwork on the Phou Ak escarpment in Nakai-Nam Theun National Protected Area in Khammouan Province, central Laos, in 2006–2007 resulted in the discovery of a newt population in the *T. asperrimus* group approximately 400 km south of the type locality of *T. vietnamensis* in northeastern Vietnam, the most proximate known species in this group. Here we use mitochondrial DNA, nuclear DNA, and morphology to determine its identity.

### Material and methods

**Sampling:** Specimens were collected by the authors and fixed in 10% buffered formalin after preserving liver in 20% DMSO-salt saturated storage buffer. Adult specimens were later transferred to 70% ethanol.