



New species of *Pachytriton* (Caudata: Salamandridae) from the Nanling Mountain Range, southeastern China

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Abstract

New species of amphibians are being reported at an astonishingly fast rate. These include some that have been known to the commercial pet trade for years but have not been formally described due to uncertain origin. The distinctive phenotype of “*Pachytriton* B” among the Chinese stout newts (also known as paddle-tailed newts) is one such example. Through examination of museum specimens, we locate a population from Mt. Mang within the Nanling Mountain Range with morphology and coloration similar to *Pachytriton* B. Molecular phylogenetic analyses strongly suggest that this population and *Pachytriton* B belong to the same species, which differs from congeners morphologically and chromatically and is described here as a new species. This species is characterized by a large and stout body, uniformly light brown dorsum, and orange spots or blotches that extend ribbon-like along the dorsolateral sides of the body. A mitochondrial genealogy suggests that the new species is the sister taxon to the group (*P. brevipes* + *P. feii*). Morphologically, this species is significantly stouter than *P. feii* and has significantly longer limbs than *P. brevipes*.

Key words: Chinese stout newt; salamander; mitochondrial genealogy; principal-components analysis; *Pachytriton xanthospilos* sp. nov.

Introduction

Global amphibian species richness has increased by 28 percent since 2004 and 50 new species have already been described in 2012 (AmphibiaWeb, 2000). The astonishing rise in the number of named species confirms the unprecedented underestimation of amphibian diversity, especially in tropical regions (Meegaskumbura *et al.* 2002; Vieites *et al.* 2009; Funk *et al.* 2012). On the other hand, poorly surveyed temporal forests also harbor unexpected diversity, even in heavily populated areas such as southern China, from which 17 anuran species and 6 salamanders have been described or elevated to full species status since 2010 (e.g., Wu *et al.* 2009, 2010a, b; Nishikawa *et al.* 2011a, b; Li *et al.* 2012). Many new species have been discovered as a consequence of molecular phylogenetic analysis, which is now a routine tool in assessing amphibian diversity.

The Chinese stout newts (*Pachytriton*, also known as paddle-tailed newts) are a genus of highly specialized aquatic salamanders endemic to small montane streams in southeastern China. Together with *Cynops*, *Paramesotriton* and *Laotriton*, they constitute the sister clade to modern European newts, which include *Calotriton*, *Neurergus* and newts of the *Triturus* group (Steinfartz *et al.* 2007; Zhang *et al.* 2008). For over 130 years, there were only two named species of *Pachytriton*. Four additional species, however, have been described in the last four years. At this time, there are six species in the genus: *P. archospotus* Shen, Shen and Mo, *P. brevipes* Sauvage, *P. feii* Nishikawa, Jiang and Matsui, *P. granulatus* Chang, *P. inexpectatus* Nishikawa, Jiang, Matsui and Mo, and *P. moi* Nishikawa, Jiang and Matsui.

Unusual phenotypes of *Pachytriton* that do not match those of named species have long been observed in the European pet trade. Thiesmeier and Hornberg (1997) discuss two unnamed phenotypes, *Pachytriton* A and B. Until now, however, no molecular studies have assessed their phylogenetic relationship and taxonomic identities. During an examination of museum specimens in Chengdu Institute of Biology, the Chinese Academy of Sciences