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Taxonomy of Salamanders of the Family Plethodontidae (Amphibia: Caudata)

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Abstract

Several recent publications have made recommendations for changes in the taxonomy of plethodontid salamanders. Here formal taxonomic proposals are made, in accordance with the *Code*, regarding family-group taxa. Subfamilies Hemidactyliinae and Plethodontinae are recognized, the former with four tribes and the latter with five tribes. Genera are assigned to the tribes, and subgenera are recognized in the genera *Batrachoseps*, *Bolitoglossa*, *Hydromantes*, *Oedipina* and *Plethodon.*

Key words. Family-group nomina, diagnoses, Batrachosepini new taxon, Aneidini new taxon, Hydromantini new taxon

Recent years have witnessed major changes in our understanding of the phylogenetic relationships of taxa of the largest family of salamanders, the Plethodontidae. These changes have come about in part from generation of new molecular data and their analyses (e.g., Chippindale et al. 2004; Mueller et al. 2004; Vieites et al. 2011), as well as from new discoveries (Camp et al. 2009; Min et al. 2005). However, the taxonomic changes suggested have been done informally, for the most part. Here I offer a formal taxonomy. In this work I have been influenced by the detailed taxonomic treatment of the Family Salamandridae by Dubois and Raffaëlli (2009) and by the critical analysis of Dubois (2008).

The taxonomy based on osteology proposed by Wake (1966) was stable for many years. That taxonomy recognized two subfamilies, Plethodontinae Gray, 1850 and Desmognathinae Gray, 1850. The finding that desmognathines are deeply nested (Chippindale et al. 2004; Mueller et al. 2004) pointed up the need for a taxonomic revision. Chippindale et al. (2004) analyzed some mtDNA sequence data, sequences of a nuclear gene, and some morphological characters; they proposed elevating plethodontine tribes recognized by Wake (1966) to the level of subfamilies (Hemidactyliini to Hemidactylinae [sic]; Bolitoglossini to Bolitoglossinae; Plethodontini to Plethodontinae, the latter an expansion of Wake's Plethodontinae, now including desmognathines), but they restricted Hemidactylinae to *Hemidactylium* alone and recognized Spelerpinae for the remainder of Wake's Hemidactyliini. The rank of Desmognathinae was reduced to that of supergenus *Desmognathus* within their Plethodontinae. While Chippindale et al. studied neither *Batrachoseps* nor *Hydromantes*, Mueller et al, included both; *Batrachoseps* was resolved as the sister taxon of *Hemidactylium*, and *Hydromantes* fell within a cluster of taxa including species of the Plethodontinae and the Desmognathinae. Mueller et al. drew no taxonomic conclusions, but indicated the need for multiple independent genetic markers. Dubois (2005) observed that Chippindale et al. had recovered two major lineages and accordingly recognized only two subfamilies, Hemidactyliinae and Plethodontinae; within the Hemidactyliinae he recognized three tribes, Bolitoglossini (including *Batrachoseps* and all tropical genera), Hemidactyliini (only *Hemidactylium*) and Spelerpini. Within the Plethodontinae Dubois recognized two tribes, Desmognathini for the traditional desmognathines as well as *Aneides*, *Ensatina*, *Hydromantes* and *Karsenia*, and Plethodontini for *Plethodon* only. Vieites et al. (2007) presented data from three nuclear genes and found support for a hypothesis of two major plethodontid clades. In an informal taxonomic suggestion in the supplemental on-line materials Vieites et al. (2007) recognized two subfamilies, Plethodontinae and Hemidactyliinae, accepted the supergenus *Desmognathus* within the Plethodontinae, assigned *Hydromantes* to the Plethodontinae, and recognized Spelerpini as a tribe within

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