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A new species of *Simopelta* (Hymenoptera: Formicidae: Ponerinae) from Brazil and Costa Rica

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Abstract

The genus *Simopelta* consists of 21 described species restricted to Central America and South America. The present study describes a new cryptobiotic species, *Simopelta anomma* **sp. nov.**. The new species is blind, possesses a 3-segmented antennal club, and has the midtibia with several stout setae, a combination of characters unique within the genus. Moreover, some traits of this species require broadening the definition of the genus. The discovery of *S. anomma* **sp. nov.** suggests that many undiscovered species, some of which may be important for understanding ant evolution, remain hidden below ground in Neotropical rainforests.

Key words: blind ant, Rio Madeira, hydroelectric plant, cryptobiotic, *Simopelta jeckylli*

Introduction

The higher taxonomic classification of ants (Hymenoptera: Formicidae) has recently undergone significant changes (Schmidt 2013, Schmidt & Shattuck 2014; Brady *et al.* 2014, Ward *et al.* 2015). Driven by careful reconsiderations of morphological variation (Keller 2011, Schmidt & Shattuck 2014) and molecular phylogenetic studies of subfamilies, the higher classification of the Formicidae is now relatively stable and reflective of evolutionary relationships (Schmidt 2013, Brady *et al.* 2014, Ward *et al.* 2015).

The Ponerinae are notable for combining simple social organization with a high diversity of derived morphological, ecological, and behavioral traits (Schmidt & Shattuck 2014). They are broadly categorized based on their foraging microhabitats as either epigaeic, foraging on the surface of the ground or on low vegetation, or cryptobiotic, foraging in soil, leaf litter, rotting wood, or other concealed microhabitats, although many taxa are intermediate between these extremes. Cryptobiotic ant species often converge on several morphological traits that are correlated with life in restricted, dark conditions, including small bodies; eyes typically greatly reduced in size or even entirely absent; clubbed antennae; and legs often short and stocky, sometimes armed with stout setae to increase traction in soil or wood, and with only a single metatibial spur (Schmidt & Shattuck 2014).

Schmidt's (2013) phylogeny places *Simopelta* with strong support as a member of the *Pachycondyla* genus group and as sister to the remainder of that group, though other alternative relationships received some support in Bayesian analyses, including sister relationships with *Thaumatomyrmex* and the *Ponera* genus group.

Simopelta was erected by Mann (1922) as a subgenus of *Belonopelta*, and since then it has been recognized as a subgenus or as a junior synonym of *Belonopelta* (e.g., Donisthorpe 1943, Baroni Urbani 1975) or as a separate

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