



## Revised diagnosis of the family Blattisociidae (Acari: Mesostigmata: Phytoseioidea), with a key to its genera and description of a new fungus-inhabiting genus from Costa Rica

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### Abstract

The genus *Opilioseius* **gen. nov.** of the phytoseioid family Blattisociidae is described, based on adults and deutonymphs of one newly described species from Costa Rica. These striking long-legged mites undergo their life histories on the lower surface of their fungal hosts in lowland tropical rainforest. *Opilioseius grallator* **sp. nov.** coexists with a surprising variety of blattisociine and other mesostigmatic mites on fungi of the genus *Coriolus*. A diagnosis of the recently-revised familial concept of the Blattisociidae is given, along with a key to its constituent genera. Attention is drawn to the unusually large size of the egg relative to the size of the maternal female, and to an apical ventral process on the tarsus of legs II to IV, found to be present on a variety of other mesostigmatic mites, but not noted previously.

**Key words:** Blattisociidae, Phytoseioidea, fungus mites, egg size, apical tarsal process, acrotarsus

### Introduction

As part of the Arthropods of La Selva (ALAS) biodiversity project that focussed on selected groups of arthropods which exist in a section of lowland tropical rainforest in Heredia Province, Costa Rica, a remarkable assemblage of targeted families of mites has been noted, where in just one small area (ca 1600 hectares with an altitudinal gradient of only 115 metres) a treasure trove of ecological and taxonomic diversity exists (Lindquist 2001). In the subfamily Blattisociinae alone, nearly 60 species of the genus *Lasioseius* have been distinguished, many of them undescribed, along with species of *Aceodromus*, *Hoploseius*, and an undescribed genus of an amazingly stilt-legged form whose long legs II to IV well exceed those of podocinid mites.

Here we describe this new genus, with notes on its activity and coexistence with a surprising diversity of blattisociines and other mesostigmatic mites occupying the same fungi. The new genus is a member of the Blattisociinae, a taxon previously treated and diagnosed as a tribe of the family Ascidae by Lindquist & Evans (1965), but treated as one of two subfamilies in the family Blattisociidae of the superfamily Phytoseioidea by Lindquist *et al.* (2009b). A diagnosis of this recently revised familial concept of the Blattisociidae is given, along with a key to its constituent genera. The new genus appears to be most closely related to, and perhaps the immediate sister-group of, *Aceodromus*, on the basis of sharing a much reduced dorsal shield setation, the genu of legs II and III lacking seta *pv1*, relatively weakly sclerotized ventral shields, and adult females having a small ventrianal shield bearing at most four pairs of opisthogastric setae. These similarities, however, may be due to convergence, as considered in our final discussion.