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New country record for *Tetramereia convexa* (Harold, 1869)
(Coleoptera: Scarabaeidae: Scarabaeinae)

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Abstract. *Tetramereia convexa* (Harold, 1869) (Coleoptera: Scarabaeidae: Scarabaeinae) is reported for the first time from Loreto in Peru, being the western most record of the species in South America.

Key words. New record, Scarabaeinae, Peru.

Resumen. *Tetramereia convexa* (Harold, 1869) (Coleoptera: Scarabaeidae: Scarabaeinae) es reportado por primera vez para Loreto en Perú, siendo el registro más occidental de la especie para Sur America.

Palabras claves. Nuevo registro, Scarabaeinae, Perú.

Introduction

The dung beetles of the subfamily Scarabaeinae contains about 6000 species and 234 genera world-wide (Scarabnet 2009). Much of this fauna is distributed in the tropics with 1300 species and about 70 genera (Halffter 1991). Many dung beetles live on the fecal material of other animals and benefit the environment by recycling nutrients, moving and burying seeds of various plants, and serving as biological control agents of gastrointestinal nematodes and fly larvae that use this dung as a resource (Nichols et al. 2008). As these insects require dung from vertebrates, habitat alterations that result in vertebrate population changes may also affect the local diversity (Nichols et al. 2009, Quintero and Halffter 2009). In addition, dung-burying species provide a suite of critical ecosystem functions and services, yet they face multiple conservation threats, particularly from landscape conversion (Slade et al. 2011). Dung beetle assemblages responded to a variety of anthropogenic disturbances in tropical forests and support their utility as focal taxa (Nichols et al. 2007).

Scarabaeinae are also used as focal taxa in biological characterizations, rapid ecological assessments, and biodiversity monitoring to estimate alpha and beta diversity (Halffter and Favila 1993, Favila and Halffter 1997, McGeogh et al. 2002). This kind of research has generated databases to facilitate analysis and interpretation of biodiversity (Villarreal et al. 2004). However, in some specific genera the available information is scarce especially in the tribe Phanaeini where some particular taxa such as *Dendropaemon* Perty, *Gromphas* Brullé, *Homalotarsus* Janssens, *Megatharsis* Waterhouse, *Oruscatus* Bates and *Tetramereia* Klages are not well known in their habits or in their geographical distribution (Edmonds 1972).

This is the case of the dung beetle *Tetramereia convexa* (Harold, 1869) that is widely distributed in central-southern Brazil (“cerrado”), also known from the Distrito Federal and from the states of Minas Gerais, Pará, and São Paulo (Noriega et al. 2008). Arnaud (2002) reported the species, from Brazil (Pará), Venezuela (Suapure, State of Bolivar), and French Guiana, but he provided no precise data or number of specimens studied. Klages (1907) initially discover the species in the Cuara River valley in

Venezuela. The report of *T. convexa* in Colombia suggests a wider distribution pattern more located in the Orinoquía zone than in the Amazon (Noriega et al. 2008).

This species has been collected in nests of the ant genus *Atta* Fabricius (Vaz-de-Mello et al. 1998), and adults of *T. convexa* have been maintained in captivity with ant detritus. However, very little is known about the natural history of *T. convexa* and other related genera of the Phanaeini tribe (*Dendropaemon* Perty, *Homalotarsus* Janssens, and *Megatharsis* Waterhouse,). It is possible, as some authors have proposed (Vaz-de-Mello et al. 1998; Philips et al. 2004), that these genera form a monophyletic myrmecophilous group and that their supposed rarity is a result of narrow ecological specialization and sampling bias.

Discussion

During a sampling project in four kinds of understudied forests in the Loreto region of Peru, an individual (1 female) of *T. convexa* (Fig. 1) was collected using a pitfall trap baited with human feces. This is the first record of this species in Peru (Fig. 2). Collection data: PERU. Iquitos: 28 km Iquitos-Nauta road, San Juan Bautista district, Maynas province, Loreto region, Allpahuayo Mishana National Reserve (S 3°58'21.80" - W 73°25'29.12"), 148 m, Dec. 2010; to southwest of Iquitos city, between Nanay River to northwest and Iquitos-Nauta Road to south. The specimen is deposited in the Ampudia and Estrella reference collection.

The Allpahuayo Mishana National Reserve has areas with white sand forests commonly known as “varillales”. These forests are fragile habitats rich in endemic and rare species of birds (e.g. *Polioptila clementsi* Whitney and Alvarez, *Zimmerius villarejoi* Alvarez and Whitney, and *Percnostola arenarum* Isler et al.). The biodiversity of these forests are just beginning to be investigated (Alvarez 2006). The habitat where the specimen of *T. convexa* was collected corresponds to a high, wet, white-sand forest “varillal” (García et al. 2003).

The existing and new geographical records (Fig. 2) suggest that the genus *T. convexa* does not have a relictual distribution, being found in some specific regions but in a wide range in South America (five countries: Colombia, Venezuela, French Guiana, Brazil and Peru). In addition, it is important to point out that the records in Colombia, Venezuela, Peru and the majority of the records in Brazil are not in tropical rain forests; most of them are peripheral to the Amazonian region in particular ecosystems like white-sand forest, savanna or “cerrado” (Noriega et al. 2008). With an increase in the sampling efforts in these regions, and specially searching in ant nests (*Atta* spp.) as some authors suggest (Vaz-de-Mello et al. 1998) it is possible that it can be recorded in other countries like Bolivia, Guyana, Suriname and also Paraguay.

It is necessary to carefully compare specimens from these widely disjunctive regions to determine if the populations represent distinct lineages (thus, possibly distinct species or subspecies). Likewise, it is necessary to continue studying the natural history of these little-known genera with special habits, as well as to continue survey work in South America where new records may be expected.



Figure 1. Dorsal view of *Tetramereia convexa* (Harold, 1869).

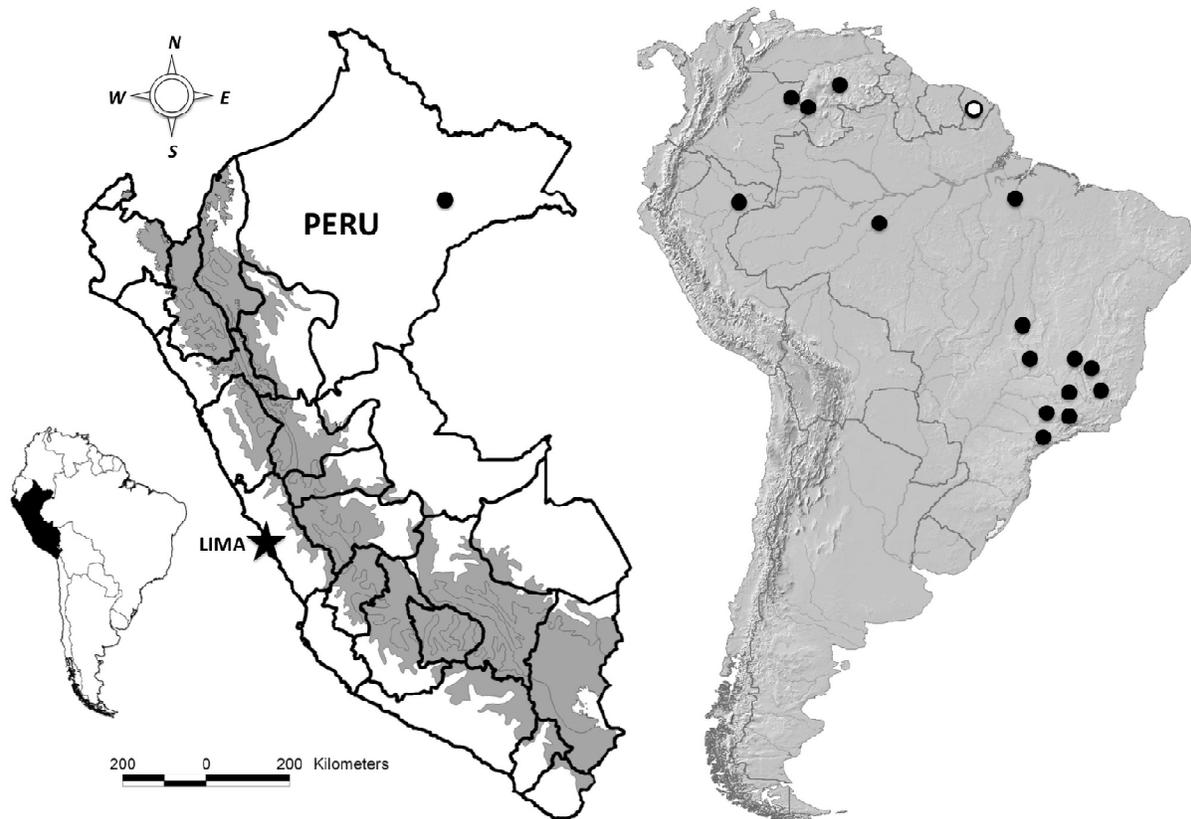


Figure 2. Map of location of the collected area in Allpahuayo-Mishana National Reserve, San Juan Bautista, Loreto, Peru. All known confirmed localities are indicated by black circles, the unconfirmed locality of Guyana is marked by a white circle.

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