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A review of the Aphodiinae (Coleoptera: Scarabaeidae) of southern South America

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Abstract

The 27 Aphodiinae (Coleoptera: Scarabaeidae) species that occur in southern South America are reviewed. This study region consists of the southern parts of Argentina and Chile including the Central Chilean, Patagonian, and Subantarctic biogeographical provinces. Keys, illustrations, and distributional records with maps for all species are presented. Seventeen species are native to southern South America, nine species are introduced, and the status of one species could not be determined due to a lack of study material. Nine of the 17 native species are endemic to southern South America, and the relationship between these endemic species and similar Australian groups is discussed. A number of classification and nomenclatural changes are made. *Paranimbus* Schmidt and *Pseudopodotenus* Dellacasa are considered to subgenera of *Podotenus* Schmidt. As a result, the following new combinations are created: *Podotenus (Paranimbus) longitarsis* (Harold), *Podotenus (Paranimbus) penai* (Petrovitz), *Podotenus (Paranimbus) peruanus* (Erichson), *Podotenus (Paranimbus) zoiyai* (Dellacasa), and *Podotenus (Pseudopodotenus) fulviventris* (Fairmaire and Germain). *Ataenius chilensis* (Solier) is removed from synonymy with *Ataenius gracilis* (Melsheimer) and is considered a valid species. *Ataenius modestus* Schmidt is synonymized under *Ataenius chilensis* (Solier). *Psammobius indefensus* Schmidt is transferred to the genus *Leiopsammodius* and *Leiopsammodius chilensis* Rakovic is placed in synonymy with this name. Lectotypes are designated for the following names: *Aphodius chilensis* Solier (now *Ataenius chilensis*), *Aphodius reflexus* Schmidt (now *Orodaliscoides reflexus*), *Ataenius modestus* (now a synonym of *Ataenius chilensis*), and *Psammobius indefensus* Schmidt (now *Leiopsammodius indefensus*). A neotype is designated for *Aphodius angustus* Philippi and Philippi, a synonym of *Pleurophorus caesus* (Panzer). Records considered to be erroneous for several Aphodiinae species in southern South America are also discussed.

Key words: Argentina, Chile, Aphodiinae, nomenclature, classification

Introduction

Over the past few years, a project has been underway to survey and inventory all of the Scarabaeoidea (Coleoptera) of southern South America. Because of years of neglect, a major taxonomic overhaul is needed for the vast majority of scarab beetle groups from this region of the world. This paper covering the subfamily Aphodiinae is a contribution to the Scarabaeoidea of southern South America project. The purpose of this paper is to record and verify the species of Aphodiinae that occur in southern South America, provide a key and identification guide to these species, provide as complete as possible information on the distribution of these species, and make necessary nomenclatural and classification changes in the context of the worldwide fauna of the subfamily.

Southern South America is defined as Central Chilean, Patagonian, and Subantarctic biogeographical provinces of Argentina and Chile (as defined by Morrone 1996, 2001). This corresponds with Regions IV–XII in Chile and the Argentinean provinces of Mendoza (but only in the Andean section), Neuquén, Río Negro, Chubut, Santa Cruz, and Tierra del Fuego. Southern South America is widely recognized for its distinct biota that differs radically from regions to the north (see for example Darlington 1965, Crisci *et al.* 1991, Linder and Crisp 1995, Morrone *et al.* 1996, Posadas *et al.* 2001). Crisci *et al.* (1991) examined the historical biogeography of southern South America and found the area to be more biologically similar to other southern hemispheric landmasses (Australia, New Zealand, etc.) than to northern South America. This pattern has also been observed in the distributions of scarabaeoid beetles (Smith 2002, Paulsen & Mondaca 2006). The study region is comprised of many different types of habitats, including Valdivian temperate rain forests, high elevation grasslands in the Andes, Patagonian steppe and grasslands, coastal scrub and dunes, Mediterranean-type forests in Central Chile, and subantarctic *Nothofagus* forests.

Aphodiinae is a diverse subfamily of mostly small species (usually between 3–10 mm long). Species are detritivores to saprophages, with adults and larvae occasionally being found in different niches. Being small, they tend to be overlooked by most collectors. In addition, many species are not collected by the more popular collecting techniques. As a result, many taxa remain quite rare in collections and others undoubtedly await