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## First record of Beaded Lacewings (Neuroptera, Berothidae) from Colombia

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### Abstract

The family Berothidae is recorded for the first time in Colombia, with *Spiroberotha sanctarosae* Adams, 1989, collected from Tayrona National Park and Zambrano municipality, in Magdalena and Bolívar departments, respectively. The external morphology and male genitalia are illustrated, providing complementary information to the original description. A key to separate species of *Spiroberotha*, as well as a list of species of Central- and South American Berothidae are presented.

**Key words:** taxonomy, Berothidae, *Spiroberotha*, Neotropical Region, new record

### Introduction

Berothidae, an uncommon and distinctive family of Neuroptera, has a cosmopolitan distribution, with about 100 or 113 species found mainly in warm regions (Monserrat, 2006). Berothids are distinguished from other families by the presence of an antennal scape longer than pedicel and an elongate prothorax in most genera; wings are falcate or rounded with a complex venation, abundant pilosity and trichosors along margin; some species have scale-like setae on wings or thorax. Male terminalia of the New World members have the ninth tergite and ectoproct fused (except in Cyrenoberothinae and Berothimerobiinae); mediuncus in several groups is elongate and sometimes coiled. In more specialized taxa, females have a pair of processes known as hypocausta, which arise at the end of the abdomen on the ninth gonocoxites (Penny, 1983). Currently, six or seven subfamilies are recognized: Berothinae (cosmopolitan), Berothimerobiinae (Chile), Cyrenoberothinae (South America and South Africa), Nyrminae (Turkey), Nosybinae (Afrotropical and Neotropical), Protobiellinae (Australia and New Zealand), and Trichomatinae (Australia), (MacLeod and Adams, 1967; Aspöck and Nemeschkal, 1998; Monserrat, 2006; Winterton, 2010). Rhachiberothidae, with an Afrotropical distribution and a controversial phylogenetic position (Willman, 1990; Aspöck and Mansell, 1994; Monserrat, 2006), has been widely accepted as a separate family and not a subfamily of Berothidae or Mantispidae. Berothidae is represented in the Neotropics by the genus *Spiroberotha* Adams with two species, *S. sanctarosae* Adams, 1989 from Costa Rica and Venezuela, and *S. fernandezi* Adams, 1989 from Venezuela, as well as by *Lomamyia* Banks, with three species in Central America, Cuba, and Brazil (Table 1; Penny, 1977, 1983; Adams, 1989; Faulkner, 1992; Oswald *et al.*, 2002).

The biology of Berothidae is poorly known. In the New World, they are common insects in desert regions of Central- and North America. The immature stages undergo hypermetamorphosis. Immatures of some species of *Lomamyia* are associated with termite colonies, where they have been reported to inject a crippling toxin to the workers and then suck their fluids (Penny, 2002). Apparently, termites never recognize beaded lacewing larvae as an intrusion of the colony. *S. sanctarosae* has been found in association with dry wood termites of the genus *Reticulitermes* (Isoptera, Rhinotermitidae) in semiarid open areas of deciduous forests or understory of primary forest, entirely during the dry season (Adams, 1989; Penny, 2002). Adults are primarily nocturnal, usually attracted to light traps (Oswald *et al.*, 2002). Stomach contents of adults usually consist of pollen (Compositae), small arthropods, fungal hyphae, and other materials (Monserrat, 2006).