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## The identity of Australia's northern-most giant pill-millipedes (Diplopoda, Sphaerotheriida)

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### Abstract

The redescription of the lectotype of *Zephronia larvalis* Butler, 1878, from the Torres Strait islands between Australia and Papua-New Guinea, shows that it does not represent a member of the SE Asian Zephroniidae, but is a species of the Australian genus *Cyliosoma* of the Cyliosomatidae, *C. larvalis* **new combination**. The syntypes of *Cyliosoma albertisii* (Silvestri, 1895; Cyliosomatidae), Australia's northern-most Sphaerotheriida species described from Somerset (close to the Torres Strait islands), were restudied, and a lectotype was selected. *C. albertisii* is discovered to be a junior synonym of *C. larvalis* (Butler, 1878). *C. larvalis*, originally described as *Zephronia larvalis*, clearly belongs to the genus *Cyliosoma*, but displays some characters, such as a high number (25–30) of apical cones on the antennae, and the reduction of the spine-like projection of the stigmatic plates, that are unique in the genus and family. This synonymy confirms the Torres Strait giant pill-millipede fauna to be an Australian element, and not the first representative of a still undiscovered Papua-New Guinean fauna.

**Key words:** Torres Strait, Somerset, *Zephronia*, *Cyliosoma*, taxonomic redescription

### Introduction

The order of giant pill-millipedes (Sphaerotheriida) is present in Australia with three genera and 27 described species. Sphaerotheriida, formerly known only from eastern Australia, were recently discovered in coastal and more humid forest fragments of western Australia (Jeekel 1986; Main *et al.* 2002; Moir *et al.* 2009). The 27 Australian species belong to two families, Procyliosomatidae and Cyliosomatidae, that are not closely related (Wesener 2014). Some Australian species are still so little known that they cannot be placed in a family based on their first descriptions alone.

One of these little-known species is *Zephronia larvalis* Butler, 1878, described from the Torres Strait islands between northern Australia and Papua-New Guinea. This area is particularly interesting because representatives of the order Sphaerotheriida seem to be absent from Papua-New Guinea. The widespread SE Asian family Zephroniidae, according to our current knowledge, only reaches as far as the Philippines and Sulawesi, not the islands located further east. Therefore, *Z. larvalis* could, as the original genus assignment indicates, represent the first member of a Zephroniidae species in Papua-New Guinea. Alternatively, *Z. larvalis* could be the northern-most records of one of the Australian families, Procyliosomatidae or Cyliosomatidae. Unfortunately, the species is only known from its first description, being otherwise listed as dubious in several summaries of the Australian giant pill-millipede fauna (Silvestri 1917; Jeekel 1986; Mesibov 2013). Here, the type of *Z. larvalis* is redescribed and placed in a valid genus and family. In addition, the type series of Australia's northern-most giant pill-millipede species, described from Somerset just opposite to the Torres Strait islands in Queensland, *Cyliosoma albertisii* (Silvestri, 1895) is also redescribed and compared to *Z. larvalis*. Unusual morphological features of both species are discussed.

## Synonymy of *C. albertisii* (Silvestri, 1895) and *C. larvalis* (Butler, 1878)

The unique characters of *C. larvalis*, the female vulva and the increased number of apical cones of the antennae, are also present in the two females of the type series of *C. albertisii*. These similarities along with the close proximity of Somerset to the Torres Strait islands, and the fact that all expeditions to the Torres Strait islands stopped (and collected) at Somerset (see D'Albertis 1880), presents a strong argument for the synonymy of *C. albertisii* under *C. larvalis*.

## Discussion

**The status of the subgenus *Epicyliosoma*:** *C. albertisii*, here shown to be a synonym of *C. larvalis*, was subsequently selected by Jeekel (1971) as the type series of the subgenus *Epicyliosoma* Silvestri, 1917, which was later elevated to genus rank (Jeekel 1986) and recently synonymised under *Cyliosoma* Pocock, 1895 (Wesener 2014).

All observed characters, such as the special modification of the (male?) antennae, the vulva and the telopods, of *C. larvalis*, the type species of the subgenus *Epicyliosoma* Silvestri, 1917, are very similar to those of other recently revised *Cyliosoma* species (Wesener 2014). This supports the indication that a subdivision of the genus into subgenera is currently not warranted.

**Morphological characters of Australia's northern-most giant pill millipedes:** *C. larvalis* shows an unusual modification to the posterior stigmatic plates (Figs 1A, B). The more anterior plates feature a short spine-like projection, while those at the midbody often totally lack such a projection. These characters almost link *C. larvalis* to the Zephroniidae, the only other family with, albeit different (Wesener & VandenSpiegel 2009), modified stigmatic plates. *C. larvalis* also carries the highest number of apical cones, and is the only known member of the Cyliosomatidae in which the (male) antenna is laterally flattened. In all other characters, especially the fusion of male antennomeres 4&5, endotergum, vulva and telopods, the species is clearly a member of the Cyliosomatidae. Further species of *Cyliosoma* should be studied for the distribution of such unusual characters in the family.

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