

THE GENUS *HOWEANUM* SMITHERS (PSOCOPTERA: ELIPSOCIDAE) TRANSFERRED TO THE FAMILY PSEUDOCAECILIIDAE

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Summary

Howeanum huberi Smithers, originally described from Lord Howe Island and placed in the Elipsocidae, is transferred to the Pseudocaeciliidae. *Austropsocus costalis* Thornton and New is transferred to *Howeanum* Smithers.

Keywords: *Howeanum*, *Austropsocus*, Psocoptera, Pseudocaeciliidae, Lord Howe Island

INTRODUCTION

With the recent increase in study of Lord Howe Island insects it has become necessary to re-examine the systematic position of the psocopteran genus *Howeanum* Smithers. It is important that relationships of genera be clearly expressed prior to zoogeographical study of the fauna. This paper presents the results of re-examination of the family position of *Howeanum* and incidentally also that of the Australian species *Austropsocus costalis* Thornton and New.

Comments on *Austropsocus costalis* Thornton and New

Thornton and New (1977) described *Austropsocus costalis* (then in the Philotarsidae) from a female from Queensland. Mockford (1984), recognizing problems in placing some genera accepted as philotarsids, re-assessed most of the genera of the family and some genera of the related Pseudocaeciliidae. He pointed out, *inter alia*, that "There has generally either been implied or expressed the view that adults in the psocopteran family Philotarsidae have three tarsomeres", that "Various authors have noted that adults in the family Pseudocaeciliidae have two tarsomeres" and that allocation of genera to the families Philotarsidae and Pseudocaeciliidae had been strongly influenced by a traditional assumption that the Philotarsidae had three-segmented tarsi and the Pseudocaeciliidae had two-segmented tarsi. Of particular importance in the present context was his demonstration that *Austropsocus* Smithers is more appropriately placed in the Pseudocaeciliidae than in the Philotarsidae despite its possession of a three-segmented tarsus. At the same time he erected the family Bryopsocidae for *Bryopsocus* Thornton, Wong and Smithers, gave diagnoses of the three families and allocated genera to each on the basis of a range of characters. In doing

so he reduced the importance of the number of tarsal segments in the philotarsid, pseudocaeciliid and bryopsocid complex.

Schmidt and Thornton (1992) accepted *Austropsocus* as a pseudocaeciliid genus and described the male of *A. costalis*. They pointed out that the species did not fall into either of the two species groups into which Thornton and New (1977) had grouped the Australian species of *Austropsocus* but they continued to regard it as an *Austropsocus*.

The genus *Howeanum* Smithers

Howeanum Smithers was erected (Smithers 1995) to accommodate *H. huberi* Smithers from Lord Howe Island. *H. huberi* males are macropterous but females have their wings reduced to tiny vestiges. *Howeanum* was placed in the Elipsocidae. Lienhard and Smithers (2002) placed *Howeanum* under "*Incertae sedis*" in the family Elipsocidae, implying doubt about its position. The fact that it lacked the dorsal section of the epistomial suture, a distinctly pseudocaeciliid feature, and that the setae of the hind wing were arranged in an atypical way for an elipsocid but as usual for a pseudocaeciliid were overlooked. In the Elipsocidae there are usually hind wing setae only on the margin between R2+3 and R4+5 posterior to which the margin is mostly without setae. In *Howeanum* marginal setae occur from near the end of R1 along the hind margin of the wing to near the wing base. The male phallosome has well-defined sclerites associated with the penial bulb; the female sub-genital plate lacks the groups of strong setae usually found on the posterior lobes in the Elipsocidae; and, the apophysis on the dorsal valve of the female gonapophyses is large in relation to the body of the valve. In these features *Howeanum* resembles the Pseudocaeciliidae rather than Elipsocidae.

Mockford (1984) gave a table of characters of the genera of Philotarsidae and some of the Pseudocaeciliidae from which it can be concluded that *H. huberi* should be placed in the Pseudocaeciliidae. Within the family it would be placed in the Zelandopsocinae, in company with *Zelandopsocus* Tillyard, *Austropsocus* and *Novopsocus* Thornton, three of the four genera in the family which have three-segmented tarsi.

Novopsocus is very different from the other genera by virtue of its narrow fore-wings, in having a group of setae on each posterior lobe of the female sub-genital plate and in having a flattened head capsule with a resultant very sharp vertex. The first flagellar segment of the antenna is unusual in that it is massive and flattened.

Howeanum differs from *Austropsocus* in having a single row of setae on Rs+M in the fore wing. Species of *Austropsocus* have mostly heavily setose fore-wing veins and Rs+M has more than one row of setae. The male hypandrium in *Austropsocus* has one or two lobes on the hind margin, flanked in many species by a small, blunt sclerotized apophysis or other process. The hypandrium in *Howeanum* has three well-formed lobes with a very small lobe on each side at the base of the median lobe.

The hypandrium in *Zelandopsocus* has the middle lobe narrowed at the base whereas, in *Howeanum* the base is broad. There is also a single row of setae on Rs+M in the fore wing of *Zelandopsocus* and the female sub-genital plate has two posterior lobes which overlap one another, each carrying one or more posterior setae.

In *Austropsocus* the two posterior lobes of the sub-genital plate do not overlap each other and one or two setae are present on each lobe. The lobes are not well developed in *Howeanum*, there being mere suggestion of incipient division of the hind margin of the sub-genital plate on each side of which there is one seta.

Howeanum huberi* and *Austropsocus costalis

Material taken during a fauna survey in the Mount Royal area, Hunter Valley, New South Wales includes two males of *A. costalis*. Comparison of *H. huberi* with *A. costalis* reveals that they are very similar to one another. In both species the male hypandrium is lobed there being three distinct posterior lobes and two very small lobes at the base of the middle lobe, one on each side, giving the hypandrium a five-lobed appearance. This condition

is similar to that in *Zelandopsocus*. The smaller lobes were not mentioned in the original description of *H. huberi* (Smithers 1995, Figure 12). They are very small, little more than small domes at the base of the larger lobe, giving the impression that the hypandrium is three-lobed. The phallosomes are similar to one another in *H. huberi* and *A. costalis* but differ in details of the main sclerites (Smithers 1995, Figure 13; Schmidt and Thornton 1992, Figure 122, phallosome tilted in illustrated specimen). The sub-genital plate in both species is rounded behind with only incipient division of the hind margin into two lobes, each with a strong posterior-directed seta (Smithers 1995, Figure 18; Thornton and New 1977, Figure 146). In both species there is one row of setae on the main stem of vein M+Cu. There is no doubt that *Howeanum huberi* and *A. costalis* should be regarded as being congeneric, despite the fact that one species is sexually dimorphic and the other not. *Austropsocus costalis* is here transferred to the genus *Howeanum* (now placed in the Pseudocaeciliidae) and should be referred to as *Howeanum costale* (Thornton and New) (*comb. nov.*)

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