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## Chrysomelid males with enlarged mandibles: three new species and a review of occurrence in the family (Coleoptera: Chrysomelidae)

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### Abstract

Three new species of Chrysomelidae with extraordinary extensions of the male mandibles are described: *Scaphodius drehu* **sp. nov.** and *S. ferox* **sp. nov.** (Cryptocephalinae), from New Caledonia, and *Chaloenus gajah* **sp. nov.** (Galerucinae), from Borneo. Designation of the type species of *Chaloenus* Westwood, 1861, is clarified. Synonymy of *Scaphodius* Chapuis, 1874, with *Nyctra* Baly, 1877, is supported. Four species of *Ditropidus* Erichson, 1842, described from New Caledonia, but hitherto regarded as *nomina nuda*, are shown to be available and are placed in *Scaphodius*: *S. aeneus* (Fauvel, 1907), **comb. nov.**, *S. nitidus* (Fauvel, 1907) **comb. nov.**, *S. striolatus* (Fauvel, 1907) **comb. nov.**, *S. sulcatus* (Fauvel, 1907) **comb. nov.** *Ditropidus opacicollis* Fauvel, 1907, is also transferred to *Scaphodius*, as *S. opacicollis* (Fauvel) **comb. nov.** The genus *Ditropidus* does not occur on New Caledonia.

Male mandible enlargement in the Chrysomelidae is reviewed: it is common in Cryptocephalinae, but otherwise restricted to a few species of Chrysomelinae, Eumolpinae and Galerucinae. Possible reasons for its distribution in the Chrysomelidae are discussed.

**Key words:** leaf beetle, Cryptocephalinae, Galerucinae, taxonomy, sexual dimorphism, mandible, agonistic behaviour, Borneo, New Caledonia

### Introduction

For several years the senior author (CAMR) has been ‘sitting on’ specimens of unusual species of leaf beetle discovered in museum collections. Originally it was intended to include these species within generic revisions, but it seems unlikely that these objectives will be realised, as discussed below. Therefore, we describe the species here and summarise the distribution of similar features in Chrysomelidae.

One species was discovered as a unique specimen in the Zoological Museum, Bogor (ZMB), while CAMR was employed to sort the Coleoptera collection in 1999. It belongs to the south-east Asian genus *Chaloenus*, unusual for the sexual dimorphism displayed by some species and the non-alticine appearance of these flea-beetles. The senior author had collected several new species of *Chaloenus* in Borneo 1996–1997, and was considering a generic revision. Since then many new species have been described, especially from Borneo, and two generic revisions published (Medvedev 2002, 2004, 2007; Takizawa 2012). The ZMB specimen, with its unique mandibular horns, remains unknown to both these authors and is described below.

Another species was discovered amongst material of *Scaphodius* loaned from the Bishop Museum, Hawai’i, for CAAMR’s doctorate on Cryptocephalinae (awarded more than 20 years ago). This species is remarkable for the asymmetric mandibular horn in the single male specimen. The senior author’s original intention was to revise *Scaphodius*, endemic to New Caledonia, but what at first appeared to be a relatively small genus has become greatly expanded by availability of additional material from other sources. We are aware of at least 50 species in *Scaphodius*, requiring a major study for which time is lacking. A few of these species have been described recently (Schöller 2009). *Scaphodius* shows extreme sexual dimorphism in some species, perhaps more than any other taxon in the Cryptocephalinae. The new species is described below together with another unusual species, recently collected.