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## Review of *Atlanticus* Scudder, 1894 (Orthoptera: Tettigoniidae: Tettigoniinae) from China, with description of 27 new species

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## Abstract

*Atlanticus* Scudder illustrates a disjunctive distribution comprising 1 subgenus and 10 valid species from eastern North America and 2 subgenera and 14 valid species from eastern Asia. Several authors also predicted that it would appear that China was rich in new species of the genus *Atlanticus*. Based on investigation of male stridulatory apparatus, as well as previously used characters, including male and female abdominal apex and measurements of various structures, we present a taxonomic account of 43 species of *Atlanticus* from China. Twenty-seven species of *Atlanticus* new to science are described. Erroneous synonyms are noted, based on examination of topotypes. *Atlanticus changi* Tinkham, 1941 and *Atlanticus pieli* Tinkham, 1941 are valid species and not synonyms of *Atlanticus kiangsu* Ramme, 1939. *Atlanticus jeholensis* Mori, 1935 is also valid and not a synonym of *Atlanticus sinensis* Uvarov, 1924. Moreover, the supposedly important character, i.e., length comparison between male pronotum and tegmen, is not suitable for differentiating two subgenera of *Atlanticus*, because it is easy to cause confusion. In contrast, the architecture of the male tegmen is a useful character to differentiate the two subgenera. The previous mentioned Species Groups and the corresponding descriptions are also studied. Necessary illustrations are provided.

## Introduction

*Atlanticus* was described for three species *Decticus dorsalis* Burmeister, *Decticus pachymerus* Burmeister, and *Atlanticus gibbosus* Scudder by Scudder (1894). It is characterized by the sharply pronounced lateral carinae of pronotum, prosternum armed with two erect spines, ventral surface of the hind femora with four terminal spines, and the short inner tooth of male cercus (Scudder 1894). Kirby (1906) designated *Decticus pachymerus* Burmeister as its type species. Subsequently, several authors including Rehn & Hebard (1916), Davis (1915), and Hebard (1934) provided transfers and described new species of *Atlanticus* from eastern North America. Some others including Uvarov (1924, 1926), Mori (1936), Ebner (1939), Ramme (1939), Tinkham (1941), Bei-Bienko (1951, 1955), Zheng and Shi (1999) and Du and Shi (2005) described some new species and provided new transfers from eastern Asia. Until now, there have been recorded two subgenera twenty-four valid species in the world. They are distributed with one subgenus and ten species occurring in eastern North America and two subgenera fourteen species in eastern Asia. In addition, both Uvarov (1924) and Tinkham (1941) also stated that eastern Asia must possess further new species unknown to science.

Presently, the taxonomic status of species in the *Atlanticus* requires clarification. In Rehn & Hebard's excellent monograph (1916), the North American species were divided into four groups, based on the size, lateral margin of pronotum, degree that male tegmina are concealed under pronotum, shape of male cercus, and female ovipositor. Tinkham (1941) divided the eastern Asian species into six species groups, based on characteristics of male tegmen, male cercus and ovipositor. Ramme (1939) considered *Atlanticus ussuriensis* Uvarov, 1926 in Tinkham's Palpalis Group as type species to establish the genus *Paratlanticus*. Bei-Bienko (1955) divided the genus into two subgenera based on the differences on the length comparison between male pronotum and tegmen, shape of female ovipositor apex, and female subgenital plate; however, he didn't discuss the relationship between the subgenus and the species groups in Tinkham (1941). Among the species distributed in China, four belong to the subgenus *Atlanticus*, seven belong to the subgenus *Sinpacificus*, and two species are not ascribed to any subgenus in Eades *et al.* (2013); however, the ascription needs to be carefully checked. Additionally, one of the initially proposed characters used to differentiate the two subgenera of *Atlanticus*, i.e., length comparison between male pronotum and tegmen, is not useful because utilization of the character is easy to cause confusion.