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MOLLY G. RIGHTMYER

Department of Entomology, MRC 188, P. O. Box 37012, National Museum of Natural History, Smithsonian Institution,
Washington, D.C. 20013-7012 USA
rightmyerm@si.edu

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Abstract

The cleptoparasitic bee genus *Triepeolus* is a widespread, species-rich group that has never been revised throughout its geographic range. Herein I review 103 species of *Triepeolus*, including all but those that belong to the newly defined *Triepeolus verbesinae* and *Triepeolus simplex* species groups (these will be the topic of a subsequent paper). I present three keys to the species, which together cover the genus throughout its range in the New World; the keys are to the females of North and Central America, the males and females from Eastern North America, and the males and females from South America and the Caribbean. I propose the following 37 new species: *Triepeolus antiochensis*, *T. argentimus*, *T. argus*, *T. bimorulus*, *T. charlesi*, *T. circumculus*, *T. claytoni*, *T. cruciformis*, *T. diffusus*, *T. dilutus*, *T. edwardi*, *T. engeli*, *T. exilicurvus*, *T. flavigradus*, *T. fulgidus*, *T. griswoldi*, *T. interruptus*, *T. isohedrus*, *T. jennieae*, *T. joliae*, *T. lateralis*, *T. margaretae*, *T. mauropygus*, *T. melanarius*, *T. micheneri*, *T. nayaritensis*, *T. parkeri*, *T. partitus*, *T. parvidiversipes*, *T. parvus*, *T. perpictus*, *T. phaeopygus*, *T. punctoclypeus*, *T. quadratus*, *T. simulatus*, *T. vernus*, and *T. warriti*, and propose the new combinations *Triepeolus laticeps* (Friese), *Triepeolus tepanecus* (Cresson) and *Triepeolus zacatecus* (Cresson). I newly synonymize 45 of the 169 previously proposed *Triepeolus* names, for a total of 51 synonymies: *T. alachuensis* Mitchell under *T. rufithorax* Graenicher; *Epeolus albopictus* Cockerell, *E. costaricensis* Friese, and *E. flavocinctus* Friese under *T. aztecus* (Cresson); *T. alpestris* Cockerell, *T. amandus* Cockerell, and *T. vandykei* Cockerell and Sandhouse under *T. paenepectoralis* Viereck; *E. bardus* Cresson, *T. mesillae* Cockerell, and *T. pimarum* Cockerell under *T. distinctus* (Cresson); *T. brunneus* Cockerell under *T. balteatus* Cockerell; *T. charlottensis* Mitchell under *T. brittaini* Cockerell; *T. cirsiianus* Mitchell under *T. donatus* (Smith); *T. concinnus* Cockerell under *T. townsendi* Cockerell; *T. coquilletti* Cockerell, *T. helianthi arizonensis* Cockerell, *T. helianthi pacificus* Cockerell, *T. lineatulus* Cockerell and Sandhouse, and *T. maculiventris* Cockerell under *T. helianthi* (Robertson); *T. dichropus* Cockerell, *T. eldredi* Cockerell, *T. helianthi grandior* Cockerell, *T. pallidiventris* Cockerell and Sandhouse, *T. rectangularis* Cockerell, and *T. wyomingensis* Cockerell under *T. texanus* (Cresson); *T. digueti* Cockerell and *E. nobilis* Friese under *T. intrepidus* (Smith); *T. floridanus* Mitchell

under *T. georgicus* Mitchell; *T. fortis* Cockerell, *T. insolitus* Cockerell, and *T. trilobatus* Cockerell under *T. martini* (Cockerell); *T. foxii* Cockerell under *T. rufoclypeus* (Fox); *T. lestes* Cockerell under *T. subalpinus* Cockerell; *T. loganensis* Cockerell and *T. sandhousae* Cockerell under *T. fraseriae* Cockerell; *T. nautlanus* Cockerell under *T. lunatus* (Say); *E. nigriceps* Smith under *T. robustus* (Cresson); *E. oswegoensis* Mitchell under *T. pectoralis* (Robertson); *T. perelegans* Cockerell and *T. trichopygus* Cockerell and Timberlake under *T. penicilliferus* (Brues); *T. signatus* Hedicke under *T. ventralis* (Meade-Waldo); *T. stricklandi* Cockerell under *T. subalpinus* Cockerell; *E. superbus* Provancher and *E. texanus nigripes* Cockerell under *T. remigatus* (Fabricius); and *E. utahensis* Cockerell under *T. heterurus* (Cockerell and Sandhouse).

Key words: Bee, Apoidea, Apidae, Nomadinae, Epeolini, brood parasite, cuckoo bee, taxonomic revision

Introduction

The cleptoparasitic bee genus *Triepeolus* (Apidae: Epeolini) is a relatively widespread, species-rich genus, much like the related genus *Epeolus*. *Triepeolus* ranges throughout much of the New World, from British Columbia and Nova Scotia, Canada, south through the Antilles and Central America. In South America, the genus is found from Colombia to Guárico, Venezuela, south to Río Negro, Argentina (but not including Chile), and Santa Catarina, Brazil. An additional two species are found in the Old World, with one species each in Eurasia [from Northern Italy east to the Volga (Privolzhsky) Federal District in Russia and western Kazakhstan] and eastern Asia (from Guangxi, China, north to the Khabarovsk Krai, Russia, and east to Japan) (Michener 2000, and herein). Unlike *Epeolus*, which only has *Colletes* as hosts, it has been documented to attack a wide range of host bees in several families (Rightmyer 2004, and references cited therein); further evidence suggests that *Triepeolus* may, in fact, parasitize members of every family within its geographic range (herein, and Rightmyer in prep.).

The purpose of this and a forthcoming companion paper (Rightmyer in prep.) is to provide an overview of the species of *Triepeolus* worldwide. Herein I treat all *Triepeolus* species excluding those belonging to the newly defined *T. verbesinae* and *T. simplex* species groups (defined below, with lists of included taxa). For each species, I present a taxonomic history, description, geographic distribution, known bee and floral host data, tally of specimens examined, and their repositories.

I provide three keys to the species. One is a key to the species in the regions where *Triepeolus* is most diverse—North and Central America. This key excludes species belonging to the *T. verbesinae* and the *T. simplex* species groups, and is restricted to females because the males have not yet been fully studied in these regions. The second and third keys are more comprehensive: they include both males and females of all species (to the extent that both genders are known), and include species of the *T. verbesinae* and *T. simplex* species groups. However, they are restricted to regions where *Triepeolus* is less diverse: the second key is limited to those species found in North America east of the Mississippi River, and the third to those species found in South America and the Caribbean. Thus, all female *Triepeolus* can be identified to species with the keys included herein except for western North and Central American species of the *verbesinae* and *simplex* species groups.

Triepeolus is a relatively well-collected group of bees that is commonly confused with the related genus *Epeolus*. As a step towards gaining a better understanding of *Triepeolus*, the main focus of this paper is an examination of the females of this genus; however, where known, males are also included in these treatments. Indeed, the examination of male primary types was an important component of this study, and in most cases it was a straightforward matter to associate male type specimens with females. In only three cases, a name associated with an examined male holotype could not be associated with a female. These three unassociated names are *T. cuneatus* Cockerell, *T. isocomae* Cockerell, and *T. sequior* Cockerell (see “Unplaced Species Names,” p. 131). Also included in the list of “Unplaced Species Names” are five species whose primary type specimens or series could not be found (see below), and whose identities could not be determined based on the