



Similar look but different song: a new *Cicadetta* species in the *montana* complex (Insecta, Hemiptera, Cicadidae)

JÉRÔME SUEUR¹ & STÉPHANE PUISSANT²

¹NAMC-CNRS UMR 8620, Université Paris XI, Bât. 446, 91405 Orsay Cedex, France

Present address: Institut de Recherche sur la Biologie de l'Insecte - UMR CNRS 6035, Parc Grandmont, 37200 Tours, France.

E-mail: jerome.sueur@univ-tours.fr

²Muséum national d'Histoire naturelle (Paris), Département Systématique et Evolution, Entomologie, 4 square Saint-Marsal, F-66100 Perpignan, France

¹Corresponding author

Abstract

The *Cicadetta montana* species complex includes six cicada species from the West-Palaeartic region. Based on acoustic diagnostic characters, a seventh species *Cicadetta cantilatrix* **sp. nov.** belonging to the complex is described. The type-locality is in France but the species distribution area extends to Poland, Germany, Switzerland, Austria, Slovenia, Macedonia and Montenegro. The calling song sequence consists of two phrases with different echemes. This calling pattern clearly differs from those produced by all other members of the complex, including *C. cerdaniensis*, previously mistaken with the new species. This description increases the acoustic diversity observed within a single cicada genus and supports the hypothesis that sound communication may play a central role in speciation.

Key words: Cryptic species, bioacoustics, Cicadidae, *Cicadetta*, geographic distribution, France

Introduction

Some biodiversity is not obvious when looking at preserved specimens. Various species do not differ in their morphology, but drastically in their behaviour. Such sibling, or cryptic, species are particularly evident in insects that produce sound to communicate: they look similar but sing differently. Many examples of such hidden biodiversity have been reported in Orthoptera, Diptera, Neuroptera and Hemiptera (Henry, 1994; Sueur, 2006). Among Hemiptera, cicadas (family Cicadidae) are well-known for the calling songs they produce during pair formation. Sibling species have been described or confirmed in the following genera based on acoustic criteria: *Lyristes* by Boulard (1988), *Cicadatra* by Popov (1989), *Platypleura* by Villet (1989a; 1989b), *Magiccicada* by Marshall & Cooley (2000), *Tosena* by Boulard (2000) and *Cicada* by Quartau & Simões (2005).

Acoustic analysis also revealed several sibling species in the Palaeartic genus *Cicadetta*. These species look similar, are all small in size (body length about 20–30 mm) and all produce high-pitched calling songs (> 11 kHz) that make them difficult to detect and locate. Although several calling songs were reported for *Cicadetta* species living in the eastern Palaeartic region (Popov, 1990; 1997; 1998), acoustics studies were very scarce for the western region including only *C. montana* (*auct. plur., non* Scopoli, 1772), *C. fangoana* Boulard, 1976 and *C. montana* ssp. *macedonica* Schedl, 1999 (Sueur, 2001). In 2000, a new species, *Cicadetta cerdaniensis* Puissant & Boulard, 2000, was discovered in the French Pyrénées (Puissant & Boulard, 2000). Four years later, Gogala & Trilar (2004) undertook a revision of the *montana* species complex. They elevated