



## Spectacular song pattern from the Sicilian Mountains: The new cicada species *Cicadetta anapaistica* sp. n. (Hemiptera: Cicadidae)

THOMAS HERTACH

University of Basel, Department of Environmental Science, Institute of Biogeography, St. Johannis-Vorstadt 10, 4056 Basel, Switzerland. E-mail: thomas.hertach@unibas.ch

### Abstract

Acoustic investigations of *Cicadetta montana* s. l. have revealed the presence of morphologically cryptic species in the last few years. This work describes the new cicada *Cicadetta anapaistica* sp. n. which was detected in the Madonie and Nebrodi Mountains (Italy, Sicily). The characteristic and sophisticated song is composed of three phrases, modulated on four typical power levels and three frequency ranges. The song pattern is compared with those of the closely related *Cicadetta cerdaniensis* and *Cicadetta cantilatrix*. Quantitative and even qualitative intraspecific differences of the song structure among individuals exist which appear to allow individual-specific recognition in many cases. As in other species of the complex, reliable morphological differences between the new species and others in the complex have not been found. The species is currently only known to be endemic to forest and ecotone habitats in a small mountain range. Because of this limited distribution the species is likely to be vulnerable to habitat and climate changes.

**Key words:** *Cicadetta montana* species complex, bioacoustics, song variability, Italy, ecology, distribution

### Introduction

Taxonomists have focussed on morphology when describing cicadas (Cicadidae, sensu Moulds 2005) until the last few decades. In the 18<sup>th</sup> and 19<sup>th</sup> centuries many species and subspecies similar to *Cicadetta montana* (Scopoli 1772) were described using morphological characters. Most authors later assigned them to two or three single taxa, since the characters showed large and overlapping variability (e.g. Metcalf 1963; Duffels & Van der Laan 1985; Nast 1987; Schedl 2000). With the introduction of bioacoustic methods, the taxonomy of cicadas was revised in some genera. Song activity is a very important mechanism used by male cicadas to attract females and is therefore species-specific (e.g. Cooley & Marshall 2001). Acoustic research has revealed cryptic cicada species even in relatively well investigated regions, such as Europe (Quartau & Simões 2006, Gogala & Trilar 2004). In the last few years, *Cicadetta montana* s. l. has been shown to be a species complex according to different calling song patterns. Currently, ten European and one Korean species have been described within the complex: *Cicadetta montana* (Scopoli 1772), *Cicadetta concinna* Germar 1821, *Cicadetta fangoana* Boulard 1976, *Cicadetta macedonica* Schedl 1999, *Cicadetta cerdaniensis* Puissant & Boulard 2000, *Cicadetta brevipennis* Fieber 1876 (in Gogala & Trilar 2004), *Cicadetta cantilatrix* Sueur & Puissant 2007, *Cicadetta hannekeae* Gogala, Drosopoulos & Trilar 2008, *Cicadetta olympica* Gogala, Drosopoulos & Trilar 2009, *Cicadetta kissavi* Gogala, Drosopoulos & Trilar 2009 and *Cicadetta abscondita* Lee 2008. Extended morphological (led by Hertach and Gogala & Trilar, Ljubljana, Slovenia) and genetic analyses (led by Simon & Wade, Storrs, USA and Gogala & Trilar) on the species complex are currently in progress.

Based on acoustic and morphological characters published so far, Trilar & Hertach (2008) reported three species, *Cicadetta montana* s. str., *C. brevipennis* and *C. cerdaniensis*, of the complex from Northern Italy. Acoustically confirmed observations from Southern Italy were missing up to now. In summer 2009, the author detected a completely new song pattern belonging to a species of the complex in Sicily. Since no old synonyms refer to taxa found in Italy or Northern Africa, the species is described herein as new.