

# Taxonomy and DNA barcoding of *Stenostola ferrea* (Schrank, 1776) and *S. dubia* (Laicharting, 1784) (Coleoptera, Cerambycidae, Saperdini)

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The aim of this paper is to complete the studies of the genus *Stenostola* in Northern Europe. Together with previous published studies the characters presented form a better basis for separation of *S. ferrea* and *S. dubia* both as imagines and as larvae. The presented paper consists of three parts: Studies of the genitalia, morphological characters for identification of the larvae and DNA barcoding of both *Stenostola dubia* (Laicharting, 1784) and *S. ferrea* (Schrank, 1776). Although very similar, the male genitalia have good characters for species separation. The easiest characters to use are the parameres and tips of sclerite 2. The posterior ends of the elongated median sclerites of *S. ferrea* are irregularly curved or “zigzag” shaped, while the posterior ends of the median sclerites of *S. dubia* are straight. The genitalia characters presented are not previously published. No single morphological character alone is enough to identify the larvae to species. However, when the characters are used together the mature larvae are usually identifiable. The younger the larvae are, the more difficult they are to identify. Barcoding analysis of mitochondrial COI gene shows that *S. ferrea* and *S. dubia* are genetically different. The genetic distance between the species is 10.3 %. These results, in addition to previous findings, show that despite the morphological similarities, they are clearly two different species.

Key words: Cerambycidae, Saperdini, *Stenostola ferrea*, *Stenostola dubia*, DNA barcoding, larvae morphology, genital characters, taxonomy.

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## Introduction

The taxonomical and nomenclatorial confusion about *Stenostola ferrea* (Schrank, 1776) and *S. dubia* (Laicharting, 1784) was cleared up by Wallin et al. (2005). They did not study Norwegian specimens, thus leaving the question of the occurrence of *S. ferrea* in Norway unanswered.

The status of the two species and the distribution in Norway was studied by Kvamme & Wallin (2011). They showed that all the old Norwegian specimens of *S. ferrea* were misidentified *S. dubia*. *S. ferrea* was documented occurring in the southernmost part of Norway based on newer specimens, and this species is considered to be a relict population in Norway. *S. dubia* is locally