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***Sattleria* revisited: unexpected cryptic diversity on the Balkan Peninsula and in the south-eastern Alps (Lepidoptera: Gelechiidae)**

PETER HUEMER¹ & GIOVANNI TIMOSSÌ²

¹Tiroler Landesmuseen Betriebsgesellschaft m.b.H., Naturwissenschaftliche Sammlungen, Feldstr. 11 a, A-6020 Innsbruck, Austria. E-mail: p.huemer@tiroler-landesmuseen.at

²Laboratory of preservation, restoration and Lepidoptera research, Museo di Storia Naturale "Brandolini", Viale Brandolini, 6, Oderzo (TV), Italy. E-mail: timossi.giovanni@libero.it

Abstract

The taxonomy of *Sattleria* Povolný from the high mountain systems on the Balkan Peninsula and the adjacent parts of the Alps (south-eastern Alps, Dinaric Alps, Rila Mountains) is revised based on recently collected material and re-examined museum vouchers. Adult morphology and molecular data of the COI barcode region support the existence of six strictly allopatric species in this area, including four new species: *Sattleria sophiae* Timossi, **sp. nov.** (Parco Paneveggio—Pale di San Martino, Dolomites, Prov. Trento, Italy), *Sattleria dolomitica* Huemer, **sp. nov.** (Eastern Dolomites, Prov. South Tyrol, Italy), *Sattleria dinarica* Huemer, **sp. nov.** (Durmitor NP, Dinaric Alps, Montenegro) and *Sattleria haemusi* Huemer, **sp. nov.** (Rila Mts., Bulgaria; Šar Planina, Macedonia).

Key words: Lepidoptera, Gelechiidae, *Sattleria*, new species, cryptic diversity, DNA barcode, morphology, Balkan Peninsula, Alps, high mountains

Introduction

The Gelechiidae genus *Sattleria* Povolný, is a European genus of high alpine micromoths with brachypterous females (Pitkin & Sattler 1991). Biology is almost completely unknown and material, particularly females, is scarce in collections. Despite these shortcomings, the genus was repeatedly reviewed over the last few decades based on traditional morphological studies of male genital structures, resulting in disputed taxonomic interpretations (Huemer & Sattler 1992, Huemer & Karsholt 2010, Povolný 2001, 2002a, 2002b). Whereas Povolný reinforced a concept of a single polytypic species, other authors concluded that there are a considerable number of morphologically distinct species. These conflicts are reflected, for example, in the last paper of the late Povolný (2002b) dealing with *Sattleria* where this author listed one species with three to four sibling species in the same line! Recently, molecular approaches, particularly DNA barcoding, enabled phylogeographic analyses that supported species-level treatment for several taxa and the delimitation of new species, mainly from the south-western Alps (Huemer & Hebert 2011). However, the geographic coverage of sampling remained rudimentary for large parts of the south-eastern Alps, the Balkan Peninsula and the Pyrénées. Intensified collecting efforts in remote areas of south-eastern Europe have now provided in additional study material. Morphological re-examination of historical museum vouchers from south-eastern Europe, and molecular analysis of recently collected specimens, proved the existence of four previously unknown or overlooked species. These new species are herein described and figured in detail, supplemented by genitalia figures of similar taxa.

Material and methods

Extensive generic descriptions and diagnoses of species of *Sattleria* have been published in several reviews, particularly Huemer & Karsholt (2010) and Huemer & Hebert (2011), and are thus not repeated here. However, we do include an updated checklist of species and an updated key to species based on male genitalia.

variation gives hints to possible further cryptic taxa hidden among *S. styriaca* and the Pyrenean *S. pyrenaica*, which are both in need of further sampling and revisionary work.

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