



A review of the species of *Lithostege* Hübner, [1825] 1816 (Lepidoptera: Geometridae, Larentiinae), occurring in Iran and adjacent countries, with description of two new species from Iran and Pakistan

HOSSEIN RAJAEI SH.*, DIETER STÜNING* & JAAN VIIDALEPP**

* Zoologisches Forschungsmuseum Alexander Koenig, Adenauerallee 160, 53113 Bonn, Germany; e-mails: eagle426@uni-bonn.de, d.stuening.zfmk@uni-bonn.de

** Institute of Agriculture and Environmental Studies, Estonian University of Life Sciences, Riia St 181, EE-51014 Tartu, Estonia; jaan.viidalepp@emu.ee

Abstract

The Iranian species of *Lithostege* are reviewed and additional species from neighbouring countries (which are also likely to occur in Iran), as a whole twenty-eight taxa, are studied. Adults of all species and male and/or female genitalia for most species are figured. Two new species are described: *L. samandooki* Rajaei **sp. nov.** from Iran and *L. hreblayi* Rajaei & Viidalepp **sp. nov.** from Pakistan. *L. repeteki* Tsvetajev and *L. griseata gigantea* Bytinski-Salz & Brandt are synonymized with *L. obliquata* Urbahn and *L. griseata griseata* (Denis & Schiffermüller), respectively. *L. amseli* Wiltshire is discussed as a possible synonym of *L. amoenata* Christoph. *L. flavicornata* (Zeller) is upgraded to species-rank again. Distribution areas of all species discussed are shown by maps. Literature data concerning faunistics, ecology, and biological data are reviewed. Female genitalia of *L. obliquata* Urbahn, *L. turkmenica* Tsvetajev, and *L. luminosata* Christoph, are figured and their morphological characters compared with other taxa for the first time. A check list is presented and a preliminary grouping of species treated is proposed, based largely on morphological characters of the genitalia. It does not necessarily reflect a natural relationship of the species included, but may provide a first structure to the genus, as a basis for future studies.

Key words: Iran, Larentiinae, *Lithostege*, new species, *L. hreblayi*, *L. samandooki*, taxonomy, morphology, new synonyms, check list, preliminary species groups.

Introduction

As generally accepted, *Lithostege* Hübner [1825] 1816 is a genus well defined by morphological characters of legs, wing venation, build of head, abdomen and genitalia structures. However, distinguishing its various species based on wing shape and pattern only appeared to be difficult for early taxonomists. For example, Staudinger recognized only six species for Europe, with many putative synonyms in his first catalogue, a result of many confusing descriptions of the species known that time (Staudinger & Wocke, 1871). Thirty years later, he enumerated eighteen Palearctic species and varieties in *Lithostege* (Staudinger & Rebel, 1901). Prout (1914:171) reported on 22 species (one placed here erroneously, according to Prout, 1915: 397) and in the years 1937/38, 27 Palearctic species were known, but one of them (*L. flavicornata* Z.) still not recognized as a distinct species (Prout, 1937: 83; 1938: 237). Parsons et al., 1999 included 37 Palearctic species of *Lithostege* (49 species and 8 subspecies worldwide). The most recent list (Scoble & Hausmann (2007)) recorded 50 species worldwide for this genus.

Lithostege Hübner [1825] 1816 belongs to the tribe Chesiadini Stephens, 1850 (subfamily Larentiinae). Other genera belonging to this tribe are *Chesias* Treitschke, 1825, *Chesistege* Viidalepp, 1990, *Carsia* Hübner [1825] 1816, *Aplocera* Stephens, 1827. All of them are also represented in the Iranian fauna by a number of species. They share some distinctive morphological characters, e.g. the fore-tibia with distal, tooth-like projections, male genitalia with a rib-like sclerite, from below the uncus to the hemitransstilla (Viidalepp, 1990b). *Chesias* and even more *Chesistege* are close to *Lithostege* sharing strongly bulbed femora of forelegs, short fore-tibiae ending in two distal teeth, large and strongly sclerotized 8th abdominal tergite, forewing with two areoles, anal vein of hindwings in male short and hidden in a longitudinal pocket.