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A survey of *Eupithecia* Curtis, 1825 (Lepidoptera, Geometridae, Larentiinae) in Mongolia with descriptions of two new species

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Abstract

The *Eupithecia* fauna of Mongolia is surveyed in this paper, drawing on previous publications and newly collected material. In total 57 species are recorded. Two species *Eupithecia anikini* Mironov & Galsworthy, **sp. n.** and *Eupithecia munguata* Mironov & Galsworthy, **sp. n.** are described as new. Twelve species are recorded as new for the fauna of Mongolia, *E. olgae*, *E. illaborata*, *E. bastelbergeri*, *E. pusillata*, *E. actaeata*, *E. vicariata*, *E. saisanaria*, *E. simpliciata*, *E. impolita*, *E. assimilata*, *E. thalictrata* and *E. exactata*. Habitus and genitalia are illustrated for new species, and for little known older species where illustrations are not available in recent papers. A further 2 previously described species are synonymised, *E. mongolica* Vojnits of *E. satyrata* Hübner, and *E. procera* Vojnits of *E. exactata* Staudinger.

Key words: Mongolia, *Eupithecia*, Lepidoptera, Geometridae, revision, taxonomy, synonymy, distribution

Introduction

This paper forms one of a series designed to survey the Asian *Eupithecia* fauna, both assembling records, and clarifying the identity of species described in earlier years, and bringing together new records derived from more recent collecting. Though extremely species-rich in the Himalayas, China and in Japan, the *Eupithecia* fauna of Mongolia is comparatively poor. 57 species of this genus have hitherto been recorded from this large territory.

Staudinger (1897) initially recorded six species of *Eupithecia* from the Uliassutai district in Mongolia. Two of these he described as new, *E. uliata* and *E. nephelata*. A further species of this genus, *E. subumbrata* (Staudinger & Rebel, 1901; as *E. scabiosata*) was mentioned from Changai, which they placed in Mongolia. The geometrid fauna of this country were more extensively studied after determination of materials collected by members of the Mongolian-Czechoslovak (Moucha, 1967) and Soviet-Mongolian expeditions (Viidalepp, 1973, 1975, 1976; Viidalepp & Soljanikov, 1977), and especially after the Hungarian expedition of Dr Z. Kaszab (Vojnits, 1974, 1975, 1977). As a result, 57 species of the genus *Eupithecia* were recorded for the fauna of Mongolia, among which 13 were described as new. However, of eleven species described by Vojnits from Mongolia nine were described by him on the basis of a single specimen, the exceptions being *E. propria* Vojnits, 1977 and *E. invenusta* Vojnits, 1977. The majority of these type specimens were extremely worn, especially *E. aporia* Vojnits, 1975, *E. inculta* Vojnits, 1975, *E. perfuscata* Vojnits, 1975 and *E. propria* Vojnits, 1977. All Mongolian species of this genus described by Vojnits have been subsequently synonymised (Viidalepp & Mironov, 1990; Mironov, 1990, 2003; Mironov & Galsworthy, 2013).

The Mongolian *Eupithecia* fauna is for the most part a mix of widespread Palaearctic or Holarctic species, many of them at the limits of their eastern range, and species characteristic of the Central Asian fauna, which each comprise 42% of the total. In addition there are five purely Siberian species, 3 species so far known only from Mongolia, and one species otherwise known only from central and northern China. The mix no doubt reflects the very different habitats represented by the Mongolian Gobi desert areas, and the more forested uplands in the north.

This paper is based both on a re-examination of the extensive collection in the Museum für Naturkunde, Zentralinstitut der Humboldt-Universität zu Berlin; Termesztudományi Múzeum Allattara (Hungarian Natural

***Eupithecia subfuscata* (Haworth, 1809)**

- Phalaena subfuscata* Haworth, 1809, *Lepidoptera Britannica* (2): 360. Syntype(s) (BMNH), [United Kingdom].
- Eup[ithecia] castigata* sp./f. *ussuriensis* Dietze, 1910, *Biologie der Eupitheciën* 1, taf. 72, figs 314–316; *ibidem* (1913), 2: 94. Syntypes 21, including ♂♀ (coll. K. Dietze in MNHU, examined), [Russia]: Ussuri, Kasakewitsch.
- Eupithecia latimarginata* Matsumura, 1925, *Journal of the College of Agriculture, Hokkaido Imperial University* 15 (3): 171, pl. 10, fig. 17. Holotype ♀ (EIHU), [Russia]: South-Saghalien, (Ichinosawa) (synonymised in Inoue, 1977).
- Eupithecia ichinosawana* Matsumura, 1925, *Journal of the College of Agriculture, Hokkaido Imperial University* 15 (3): 172, pl. 11, fig. 23. Holotype ♀ (EIHU), [Russia]: South-Saghalien, (Ichinosawa) (synonymised in Inoue, 1980).
- Eupithecia verecunda* Vojnits, 1980, *Acta zoologica Academiae Scientiarum Hungaricae* 26 (4): 437, figs 5, 6, 19. Holotype ♂ (ZFMK, examined), China: South Shensi, Tapaishan in Tsinling (synonymised in Mironov & Galsworthy, 2013).
- Eupithecia perpetua* Vojnits, 1984, *Acta zoologica Academiae Scientiarum Hungaricae* 30 (1–2): 214, fig. 2. Holotype ♂ (TTM, examined), [China]: North Yunnan, A-tun-tse, Talsohle, 3000 m (synonymised in Mironov & Galsworthy, 2013).

This widespread and often common Holarctic species was first recorded for Mongolia as *E. ussuriensis* Dietze by Vojnits (1974). Mongolia (aimags): Bulgan, Govi-Altai, Khuvsgul, Tuv.

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