

*Eupithecia herrenschmidti* sp. n. from Spain  
(Lepidoptera : Geometridae)

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**Summary**

*Eupithecia herrenschmidti* sp. n. from Spain is described and compared with *E. ultimaria* BOISDUVAL 1840, *E. opistographata* DIETZE 1906, *E. inversaria* TURATI 1930, *E. inquinata* SCHÜTZE 1961 and *E. penultimaria* WILTSHIRE 1985.

As an introduction to the matter treated some words will be spent on a paired organ in the male genitalia of *Eupithecia*, on which hardly a word can be found since it was defined by PIERCE (1914), even if it in most cases is shown in the figures. PIERCE did not define the organ in the introductory morphological part of his work, probably because the term adopted for it was used for several similar but not homologous structures in various genera of Geometridae. For *Eupithecia* it was defined in the systematic part under *E. insigniata* (HBN.) (1914 : 45) as "papillae on the labides' feet". The labides, latinized Greek word with the meaning "tongs" (1914 : 82) are defined by PIERCE (1914 : xxvi) as follows : "Springing from the points of union of the transtilla with the costae, there may arise two long arms each bearing a soft hairy pad and united together by a thin membrane. These arms I term The Labides (*Eupithecia* pl. xxvii)". The definition of the labides may not seem very clear at first, but we give here in Fig. 1 an example of an isolated labides-papillae complex (shown in place in Figs 4-5). This complex, which constitutes the most caudal part of the clasping structure, is exclusive for *Eupithecia*, *Chloroclystis* and *Gymnoscelis* and is present in all species. Whereas the labides show no appreciable interspecific differences in *Eupithecia*, the papillae vary considerably even if constant within greater specific groups.

*Eupithecia herrenschmidti* sp. n.

Figs 2, 4, 6.

TYPE LOCALITY : Spain : Andalusia : Orjiva.

TYPE MATERIAL : All specimens from the type locality. Holotype ♀ 18.VII.1980 (Fig. 2); 2 ♂♂ 5 ♀♀ paratypes 17.VII.1980, genital preparation Nos. 12.036 ♂, 12.037 ♂; 1 ♂ 4 ♀♀ paratypes 18.VII.1980, genital preparation Nos. 12.033 ♂ (Fig. 2), 12.034 ♀, 12.035 ♀ (Fig. 6). All specimens leg. A. MOBERG, specimens and preparations in coll. E. v. MENTZER.

Orjiva (or Orgiva) is a village on the southern slopes of the Sierra Nevada, between Motril and Granada.

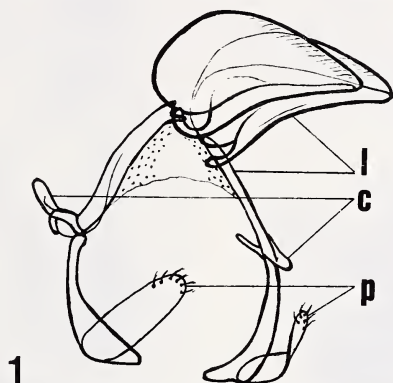
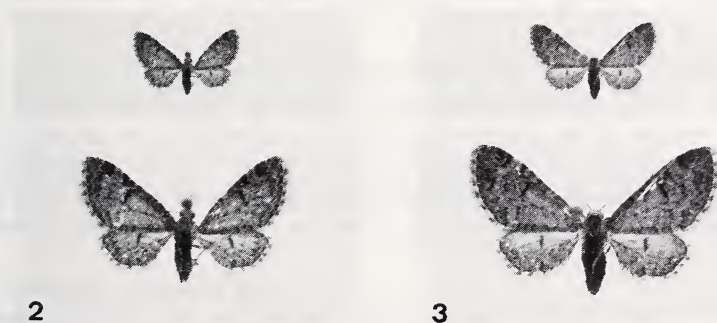


Fig. 1. Labides-papillae complex (*Eupithecia centaureata* ([DEN. & SCHIFF.])). × 48, left-caudal view, l = labides, p = papillae, c = connection pieces with the base of the supposed 10:h sternite.

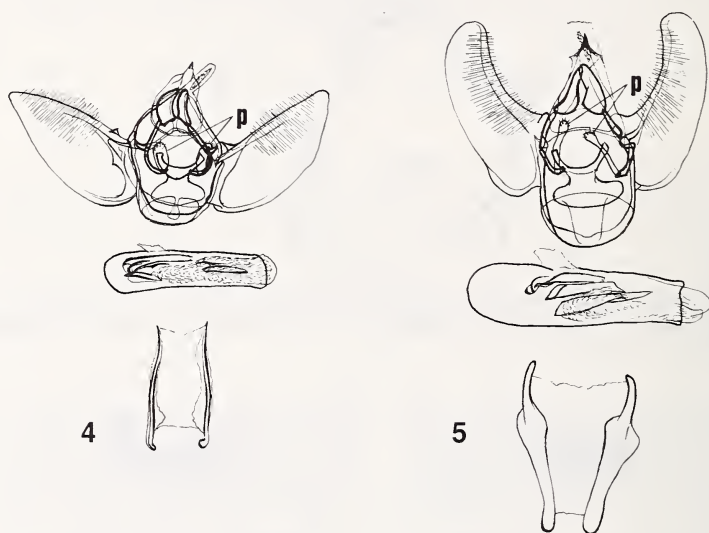


Figs 2-3. *Eupithecia* spp. — 2. *E. herrenschmidti* sp. n. ♀ holotype, Spain : Andalusia : Orjiva 18.VII.1980. — 3. *E. ultimaria ultimaria* Bsd. ♀, France : Bouches-du-Rhône : Camargue 27.VII.1980. — Life size and double size.

HABITAT : Fluvial landscape with *Tamarix*, *Erica arborea*, *Phragmites* and various grasses.

ETYMOLOGY : Named after Mr. Jean-Luc HERRENSCHMIDT, Paris, entomologist and collecting companion.

DESCRIPTION : Wingspan : ♂ 12.3-13.4 mm ( $\bar{x}$  = 12.8 mm, n = 3), ♀ 12.5-15.00 mm ( $\bar{x}$  = 13.9 mm, n = 10), holotype 14.1 mm (Fig. 2). Most similar to European *Eupithecia ultimaria ultimaria* BOISDUVAL 1840 (Fig. 3) (wingspan : ♂ 16.0-18.7 mm, ♀ 15.3-18.4 mm, measured on the material examined below), but always smaller, wings proportionally shorter, apex of forewings more pointed ; wings dorsally : dark grey with a faint violet tinge, transverse lines only slightly darker, weakly defined, as in *E. ultimaria*, discal spot short, mostly thicker than in *E. ultimaria* ; wings ventrally : slightly paler than dorsally, marginal fascia complete, more sharply defined than in *E. ultimaria*, discal spot inconspicuous ; antennae, palpi and legs without differentiating characters.

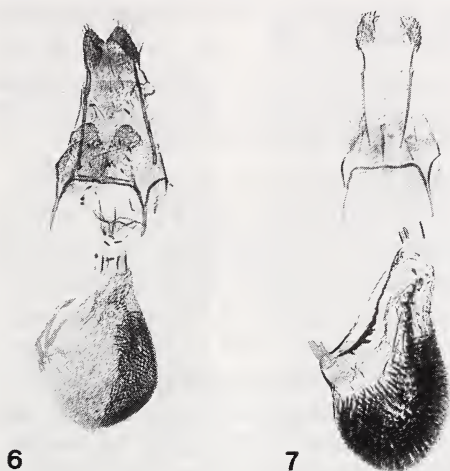


Figs 4-5. Male genitalia and ventral plate in *Eupithecia* spp. — 4. *E. herrenschmidti* sp. n. paratype, Spain : Andalusia : Orjiva 17.VII.1980, prep. No. 12.033. — 5. *E. ultimaria* BSD., France : Bouches-du-Rhône : Camargue 27.VII.1980, prep. No. 13.066. —  $\times 18$ , p = papillae.

MALE GENITALIA (Fig. 4) : Valvae simple, pointed at top, differing from the curved valvae in *E. ultimaria* (Fig. 5) with rounded top ; papillae oval, extremely thin, in contrast to the rod-shaped papillae in *E. ultimaria* ; aedeagus as in *E. ultimaria*, without obvious constant

differences; ventral plate transformed into two longitudinal rods without sclerotized connection between them, much thinner than in *E. ultimaria*.

FEMALE GENITALIA (Fig. 6): Bursa pear-shaped, relatively shorter than in *E. ultimaria* (Fig. 7), with a well amalgamated left-lateral field of minute and uniform spines, clearly differing from the long spines chiefly concentrated in the fundus in *E. ultimaria*, without the two spiny stripes present in *E. ultimaria* (and in *E. inquinata* SCHÜTZE); ductus bursae short; ductus seminalis on right side as in all similar species, in the middle of the bursa.



Figs 6-7. Female genitalia in *Eupithecia* spp. — 6. *E. herrenschmidti* sp. n. paratype, Spain: Andalusia: Orjiva 18.VII.1980, prep. No. 12.035. — 7. *E. ultimaria* Bsd., Spain: Andalusia: Cabo de Gata 27.IX.1981, prep. No. 12.044. —  $\times 18$ , dorsal view.

Once the specificity of *E. herrenschmidti* is recognized, there are no difficulties in distinguishing it from similar species. When only single specimens are available, however, these can easily be taken for an aberrant or dwarf form of some other species. A discussion of the similar species follows, of which material is available only for *E. ultimaria*.

### ***Eupithecia ultimaria* BOISDUVAL**

Figs. 3, 5, 7.

*Eupithecia ultimaria* BOISDUVAL 1840, Genera et Index methodicus europaeorum Lepidopterorum: 210. Type locality: "Massilia (Galloprov)" = France: Provence: Marseille.

*Eupithecia minusculata* ALPHERAKY 1882, Horae Soc. ent. ross. 17 : 225, pl. 9, fig. 91 ♀. Type locality : “Kouldjâ”. — Junior synonym of *E. ultimaria* BOISDUVAL 1840, PETERSEN 1909, Dt. ent. Z. Iris 22 : 268, pl. 21, fig. 85 ♂ and ♀ genitalia.

*Tephroclystia tornifascia* ROTHSCHILD 1913, Nov., zool. 20 : 132. Type locality : “between Onargla and El-Golen” (Sahara). Types in the British Museum. — *Eupithecia ultimaria tornifascia* (ROTHSCHILD 1913), PROUT 1938 in SEITZ, Die Gross-Schmetterlinge der Erde 1 (4) Supplement : 205.

*Tephroclystia arenicola* ROTHSCHILD 1913, Nov. zool. 20 : 133. Type locality : “between Onargla and El-Golen” and “South Owed Mya” (Sahara). Types in the British Museum. — *Eupithecia ultimaria arenicola* (ROTHSCHILD 1913), PROUT 1938 in SEITZ, Die Gross-Schmetterlinge der Erde 1 (4) Supplement : 205.

*E. minusculata* was described from a single ♀, wingspan 15 mm. The synonymization with *E. ultimaria* is convincing in view of the identity of the genitalia as figured in PETERSEN 1909 loc. cit.

*Tephroclystia tornifascia* was described from a single ♂, erroneously cited as ♀ in the description (see also PROUT 1938 loc. cit.), and is not illustrated anywhere. A colour-slide received from the British Museum of the type shows a rather worn specimen. Wingspan within the range of variation in *E. ultimaria*. Wing scales, where still present, of the same dark grey colour with a reddish-violet tinge as in *E. ultimaria*. The shape of the double postmedian line (the “curved double postdiscal bands” in the original description), which justified the name *tornifascia*, corresponds to the extreme limit of variation in European *E. ultimaria*. We follow PROUT 1938 loc. cit. in the interpretation of the identity of this taxon. A genital preparation of a female type of *Tephroclystia arenicola*, recently made by the British Museum (No. Geom. 12670), confirms the identity with *E. ultimaria* (M. J. SCOBLE in litt.).

MATERIAL EXAMINED : 7 ♂♂ 10 ♀♀, France : Bouches-du-Rhône : Camargue 27.VII.1980, leg. A. MOBERG, gen. prep. Nos. 12.045 ♂, 12.046 ♀, 13.051 ♀, 13.066 ♂ (Fig. 5). — 1 ♀, Spain : Andalusia : Province Almería : Cabo de Gata 27.IX.1981, leg. A. MOBERG, gen. prep. No. 12.044 (Fig. 7). — 1 ♀, France : Narbonne 8.IX.1981, leg. E. v. MENTZER. — 2 ♀♀, Spain : Balearic Isles : Ibiza 3.V and 8.V.1975, leg. S. TORSTENIUS, gen. prep. No. 6.063. — Specimens and preparations in coll. E. v. MENTZER.

*E. ultimaria ultimaria* is distributed throughout Western Europe from the English Channel to the Mediterranean. No differences were found between French and Spanish specimens, the characters of which are

discussed above under *E. herrenschmidti*. To judge from the description and the figure of *E. minusculata*, from the description of *T. tornifascia* and *T. arenicola* as well as from the colour-slide of *T. tornifascia*, the Asiatic and African populations can be united under the name *E. ultimaria minusculata* ALPHERAKI for a paler subspecies with a well outstanding whitish postdiscal band on the forewings.

### ***Eupithecia opistographata* DIETZE**

*Eupithecia* ? *minusculata* ALPHERAKI sensu DIETZE 1903, Dt. ent. Z. Iris 16 : pl. 4, fig. 20. Invalid misidentification.

*Eupithecia ultimaria opistographata* DIETZE 1906, Dt. ent. Z. Iris 19 : 66, pl. 4, fig. 20 in DIETZE 1903 loc. cit. Type locality : "Aksu" ("Chinesisches West-Turkestan", DIETZE 1903 loc. cit. : 342, 358). — *Tephroclystia opistographata* (DIETZE 1906), KUZNETSOV 1960, Trudy zool. Inst. Leningrad 27 : 72, "different genitalia" (not shown). — *Eupithecia opistographata* DIETZE 1906, SCHÜTZE 1961, Mitt. münch. ent. Ges. 51 : 58-59, pl. 3, fig. 1 ♂ and ♀ genitalia.

The figure in SCHÜTZE 1961 loc. cit. of the male genitalia shows valvae similar to those in *E. ultimaria*, only slightly wider, but papillae and ventral plate as in *E. herrenschmidti*, whereas the figure of the female genitalia shows a spherical bursa with conspicuous spines, without spiny stripes.

### ***Eupithecia inversaria* TURATI**

*Eupithecia inversaria* TURATI 1930, Atti Soc. it. Sci. nat. 69 : 63, pl. 2, 2 figs., dorsally and ventrally. Type locality : "Zuara (Cirenaica)". — *Eupithecia ultimaria inversaria* TURATI 1930, PROUT 1938 in SEITZ, Die Gross-Schmetterlinge der Erde 1 (4) Supplement : 205, fig. 17i.

The species most similar to *E. herrenschmidti* in size (wingspan 11-13 mm according to the description), but the figures show specimens with elongated wings as in *E. ultimaria*, quite different in shape from those in *E. herrenschmidti*. Described as plumbeous dorsally, which agrees with both *E. ultimaria* and *E. herrenschmidti*, but with a row of pale lunules distally of the postmedian line and ventrally with very conspicuous discal spots, characters extraneous to *E. ultimaria* and *E. herrenschmidti*. It could, notwithstanding, be a form or a subspecies of *E. ultimaria*. Its status can be decided definitely only by examination of the genitalia. Types or other material not found.

### ***Eupithecia inquinata* SCHÜTZE**

*Eupithecia inquinata* SCHÜTZE 1961, Mitt. münch. ent. Ges. 51 : 59, pl. 1, figs. 2-3, 6 ; pl. 3, fig. 2 ♂ and ♀ genitalia. Type locality : "Iranshar, Beluchistan".

A rather large species (wingspan : ♂ 18-20.5 mm, ♀ 17-20 mm according

to the description). Male genitalia as in *E. ultimaria*, with valvae and papillae of the same shape and with a similar ventral plate. Female genitalia with a bursa of spherical type, more similar to that in *E. opistographata*, but with smaller spines distributed nearly over the whole bursa, and with two spiny stripes similar to those in *E. ultimaria* but shorter.

### ***Eupithecia penultimaria* WILTSHIRE**

*Eupithecia penultimaria* WILTSHIRE 1985, Entomologist's Gaz. 36 : 265-266, figs. 2-3, dorsally and ventrally ; figs. 5-6 ♂ and ♀ genitalia. Type locality : "Baghdad".

Described as light brown, with transverse lines faint or absent and with conspicuous discal spots. Male genitalia with valvae and papillae as in *E. ultimaria* and *E. inquinata*, but ventral plate somewhat similar to that in *E. herrenschmidti*. Bursa similar to that in *E. herrenschmidti*, but with several scattered fields of spines, ductus bursae longer.

### **Remark**

In the citations above of nomenclatural acts, such as changes of rank or of combination, the original and subsequent authors have been separated by a comma because the separation with a colon, as recommended in the ICZN (Article 51 (a), Example) cannot be accepted, as its use in this position is contrary to any conventional meaning of the colon, which is to indicate that what follows is a statement of the person who precedes it. There can be no misunderstanding using a comma when the author-names are followed by respective date of publication, even if both author-names and dates would be the same. To avoid all possibilities of misunderstanding, the comma should be omitted between the author-name and the date. A comma in this position has in any case no purpose whatever.

### **Acknowledgements**

We express our thanks to Dr. Martin R. Honey at the British Museum (Natural History) for the photograph of the type of *Eupithecia ultimaria tornifascia* and to Dr. Malcolm J. Scoble at the same Museum for the genital preparation of a type of *E. ultimaria arenicola* and for its specific identification.

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