

venation similar to that of female *H. feronia* in both sexes. Even though *H. februa* is commonly cited as a stridulating species, behavioral studies revealed that males of this species in northern Venezuela populations do not produce the characteristic loud clicking sounds of several species of the genus (Otero, L. D. 1988, Contribución a la historia natural del genero *Hamadryas* (Lepidoptera: Nymphalidae), Tesis doctoral, Universidad Central de Venezuela, Facultad de Agronomía, Instituto de Zoología Agrícola, Maracay, viii + 108 pp.). This leaves open the question of whether this absence of stridulation is a particular feature of Venezuelan populations or if previous reports of stridulation in *H. februa* are due to field misidentifications, a likely possibility considering the similarity of *H. februa* with other species when seen from a distance.

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#### DIFFERENCES BETWEEN NEARCTIC PAMMENE PERSTRUCTANA AND ITS MOST SIMILAR PALEARCTIC RELATIVES (TORTRICIDAE)

**Additional key words:** Olethreutinae, Grapholitini, taxonomy.

*Pammene* is distinguished from other genera of Grapholitini, subfamily Olethreutinae, by the presence in males of dorsal hair tufts beneath scales on tergites 6, 6 and 7, or 6-8 (illustrated in the following two sources: Kuznetsov, V.I., 1987, Family Tortricidae . . . , pp. 279-967, in Medvedev, G.S., [ed.], Keys to the insects of the European part of the USSR, vol. 4, pt. 1, Tech. Transl. 81-52013, U.S. Dept. Comm.; Miller, W. E., 1987, U.S. Dept. Agr., Agr. Handb. 660, 104 pp.). In the Nearctic, *Pammene* is also distinguished from other genera by veins Sc and Rs in the male being united beyond the discal cell (illustrated by Heinrich, C., 1926, U.S. Natl. Mus. Bull. 132, 216 pp.). The known *Pammene* larvae feed in fruits, catkins, and beneath bark of woody plants (Danilevsky, A. S., & V. I. Kuznetsov, 1968, Fauna USSR, Lepidopterous insects, vol. 5, pt. 1, U.S.S.R. Academy of Sciences, Leningrad, 635 pp. [Russian]).

The *Pammene obscurana* (Stephens) species group, long a problem taxonomically in the Palearctic because of indistinct species limits, was resolved into four species by V. I. Kuznetsov (1961, Entomol. Rev. [Entomol. Obozr. in English transl.] 40:506-513). This group is represented in the Nearctic only by *P. perstructana* (Walker), which I identified after it had eluded proper generic placement for more than a century (Miller, W. E., 1985, Great Lakes Entomol. 18:145-147). In reporting this belated identification, I noted a strong resemblance between *P. perstructana* and Palearctic *P. clanculana* (Tengstrom).

Here I compare *P. perstructana* with *P. clanculana* and *P. obscurana*, its most similar Palearctic relatives. I measured dimensions with an ocular micrometer at magnifications of 10 to 45 $\times$ , and counted vesical cornuti at 200 $\times$ . The main findings are shown in Table 1.

One structural difference among the three taxa involves cornuti: *P. perstructana* and *clanculana* have only developed ones, the latter the fewest; whereas *P. obscurana* has both developed and rudimentary ones (Table 1).

Another structural difference involves valval length. Valval length and forewing length appear independent of one another in the three taxa (Table 1). Valvae are shortest in *P.*

TABLE 1. Values for four male characters of three species of the *Pammene obscurana* group. Numbers in the same column followed by different letters differ significantly (F-test,  $P < 0.05$ ). Ranges are shown in brackets.

<i>Pammene</i> species	N	Mean fore- wing length (mm)	Mean number vesical cornuti		Mean length of valva (mm)	Hue of hind- wing sex scaling
			Developed	Rudimen- tary		
<i>perstructana</i>	6	6.1a [6.0-6.4]	15.5a [10-24]	0	1.00a [0.95-1.02]	off-white
<i>clanculana</i>	6	6.3a [5.8-6.6]	9.5b [6-14]	0	0.91b [0.86-0.93]	off-white
<i>obscurana</i>	5	6.4a [5.9-6.9]	14.8a [10-21]	3.8 [0-6]	1.00a [0.94-1.11]	black

*clanculana*, and this departure is thus absolute, not relative to forewing length which reflects overall body size (Miller, W. E., 1977, Ann. Entomol. Soc. Amer. 70:253-256). Not tabulated here is the difference in valval shape between *P. obscurana* and the other two taxa. This difference results from the longer valval neck in *P. obscurana*, well illustrated by Kuznetsov (1961, *op. cit.*) who used it with body size, color of sex scaling, and other characters to distinguish *P. obscurana* and *P. clanculana*.

Melanic sex scaling of *P. obscurana* differs from its off-white homologs in both *P. perstructana* and *P. clanculana* (Table 1). This scaling occupies the hindwing area between costa and subcosta from the wing base to slightly beyond the discal cell.

Based on the foregoing differences, I conclude that *P. perstructana* is distinct from both *P. clanculana* and *P. obscurana*. The differences, which I assume to be specific, are slight but typical of the seemingly small divergence among species of the *P. obscurana* group.

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**Material examined.** *P. perstructana*: Minnesota: Ely, 12.VII.65, genit. prep. DH716816; 13.VII.65, genit. prep. DH902804; Cass Lake, 20.VI.72, genit. prep. DH326813 (UM); Ontario: Thunder Bay, 2.VII.81, genit. prep. WEM1911872; Toronto, 30.VI.77, genit. prep. WEM196901; Quebec: Norway Bay, 18.VI.39, genit. prep. WEM1911871 (CNC). *P. obscurana*: Denmark: Asserbo, 14.VI.52, genit. prep. NLW1621; 1.VI.74, genit. prep. WEM85903; Ølene, 12.VI.60, genit. prep. WEM196902; Favrsted, 14.VI.80, genit. prep. WEM85901; Onsbaek, 16.VI.58, genit. prep. WEM85902 (ZMC). *P. clanculana*: Norway: Dantjerm, 21.V.80, genit. prep. LA551; 1.VI.80, genit. prep. LA554 (LA); Finland: Saanaw, 14.VII.38, genit. prep. WEM196903; P. Malla, 9.VII.38, genit. prep. WEM196904; Kilpisjärvi, no date, genit. prep. WEM196905; Palastunturit, 1.VIII.51, genit. prep. WEM196906 (ZMH).

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