

Palaearctic Species of *Homoneura* (Diptera, Lauxaniidae)*

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Abstract. The genus *Homoneura* includes 80 Palaearctic species, of which four are described here: *H. autumnalis* sp. n., *H. insularis* sp. n., *H. sasakawai* sp. n., *H. sychevskayae* sp. n. Four synonymies are established: *Sapromyza abhorens* Shatalkin, 1992 - *H. kaszabi* Shewell, 1972; *H. lushanica* Papp, 1984 - *H. mairhoferi* Czerny, 1932; *H. rectangulata* Czerny, 1932 - *H. modesta* Loew, 1857; *H. stackelbergiana* Papp, 1984 - *H. stackelbergi* Czerny, 1932. The new name *H. enderleini* is proposed for *H. signata* Enderlein, 1937, non van der Wulp, 181. The lectotype of *H. exera* Czerny is designated. A key to Palaearctic species of *Homoneura* is proposed.

Keywords: *Homoneura*, Lauxaniidae, Diptera, new species.

By number of species, the genus *Homoneura* van der Wulp is the largest in the family. It includes slightly more than 400 species distributed in all zoogeographic regions, except the Neotropical. The genus is particularly well represented in the Oriental Region, where almost 190 species are known. Eighty species are recorded in the Palaearctic, including the species described below.

In recent years, several summarizing works have been published on the systematics of Palaearctic species of *Homoneura* with descriptions of new species (Remm and El'berg, 1980; Shatalkin, 1992; Shewell, 1971; Papp, 1978, 1981, 1984; Sasakawa and Ikeuchi, 1982, 1983, 1985; Shatalkin, 1992, 1993; Carles-Tolra, 1993). In this paper I summarize results of these and earlier published works in the form of a key to species. The need for such a key is great, given that the last such guide was published by Czerny in 1932 and included only 28 invalid species of *Homoneura*. Designations of setae and veins of wings in the key are taken from "Opredelitel' Nasekomykh Yevropeyskoy Chasti SSSR" [In Russ.; Identification Guide to Insects of the European USSR]. Types of new species are preserved in the Zoological Museum of Moscow State University and the Zoological Museum of the Russian Academy of Sciences, St. Petersburg (ZIS).

The key includes all recorded Palaearctic species. Among species considered, *H. affinis* Malloch until now had not been recorded in the Palaearctic Region. In my possession there are two males collected in the Far East, Khabarovsk, 22.VIII.1982 (Zinov'yev). In the Oriental Region this species was recorded (Sasakawa, 1992) in the Philippines, Malaysia, and Indonesia (Kalimantan). A new locality has been recorded in India: 3 ♂s, Nilgiri, 6.I.1964 (Breyev).

Two species, *S. abhorens* and *S. amphibola*, are included in the key, that I (Shatalkin, 1992) previously placed in the genus *Sapromyza*, because they have a typical sapromyzoid type of wing: small black spines on the costa ending at least at half distance between R_{2+3} and R_{4+5} . In the subfamily

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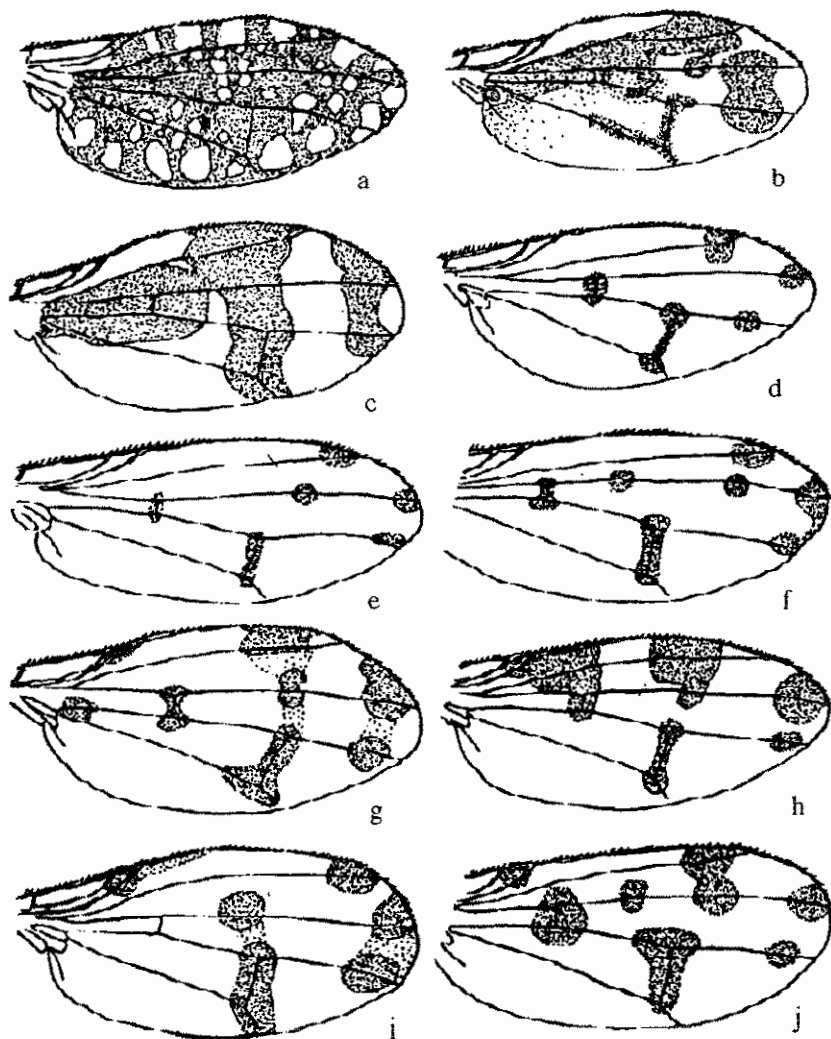


Fig. 1. Wings of species of *Homoneura*: a) *H. euaresta* (Coqu.), b) *H. albomarginata* Cz., c) *H. holthoffi* Hend., d) *H. autumnalis* sp. n., e) *H. lamellata* Beck., g) *H. pictipennis* Cz., h) *H. mairhoferi* Cz., i) *H. hirayamae* Mats., j) *H. insularis* sp. n.

Homoneurinae the wing, with rare exceptions, has costal spines that reach to the apex of R_{4+5} (homoneuroid type of wing). Analysis of genitalia, however, showed that the first of these species certainly belongs to *Homoneura* and is conspecific to the formerly described *H. kaszabi* Shewell. The status of the second species is more complex because it is known only by one female. Its place in the genus *Homoneura* is acceptable, but to determine this with certainty will be possible only after males have been studied.

Four species appeared to be identical to other previously described species, and I excluded them from the checklist. Among them, *Sapromyza abhorens* Shatalkin, 1992 (S Maritime Terr., Chita Prov.) I already mentioned. It is a junior synonym of *H. kaszabi* Shewell, 1972 (Mongolia). *H. lushmanica*

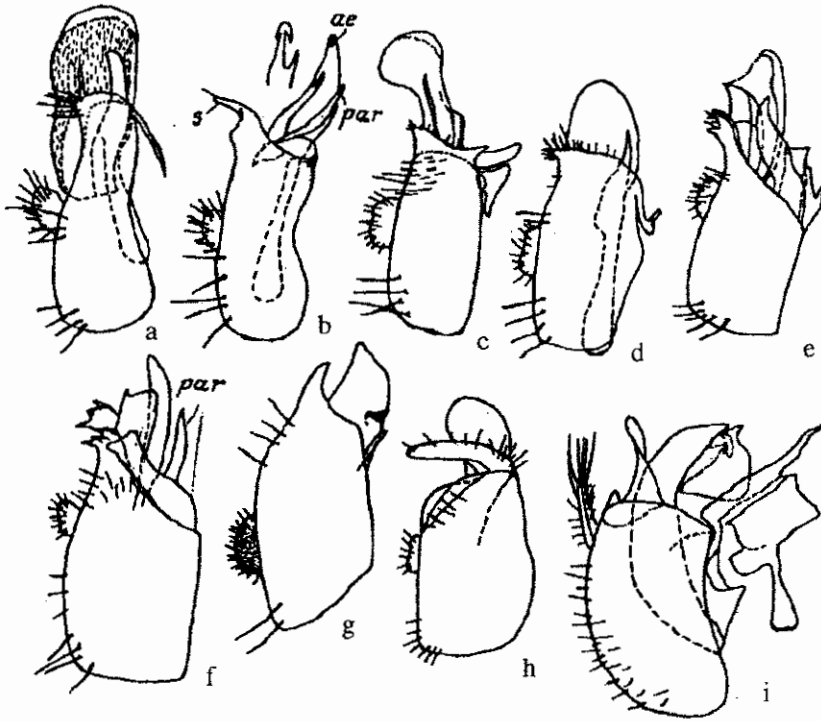


Fig. 2. Details of structure of ♂ genitalia of *Homoneura* (in lateral view): a) *H. stackelbergi* Cz., b) *H. spinicauda* Sas. et. Ik., c) *H. autumnalis* sp. n., d) *H. stigmata* Papp, e) *H. insularis* sp. n., f) *H. shatalkini* Papp, g) *H. filiola* Cz., h) *H. sasakawai*, i) *H. sychevskayae* sp.; ae) aedeagus, par) parameres, s) surstyles.

Papp, (North Korea) fits females of *H. mairhoferi* Czerny. In females of this species, unlike in males (Fig. 1h) the second spot on the margin of the wing is broader and often nearly contiguous with the first spot. Therefore, *H. lushanica* Papp, 1984 is a junior synonym of *H. mairhoferi* Czerny, 1932. *H. rectangulata* Czerny, 1932, as was shown by examination of the type, is a junior synonym of *H. modesta* Loew, 1857.

Sasakawa and Ikeuchi (1982, 1985) determined one species as *H. stackelbergi* Czerny, which actually is a new species. *H. stackelbergi* so far has never been recorded in the fauna of Japan. The Japanese species differs from *H. stackelbergi*, taking into account most distinctive differences, in the brown spot between apices of veins *Sc* and *R*₁.

Phylogenetically it is close to *H. stigmata* Papp, from which it differs in the number of rows of acrostichalia (8 vs. 6) and broad surstyles in males (Fig. 2d); in the Japanese species surstyles have a dorsally-oriented lobe bearing a tooth on the apex (see Sasakawa and Ikeuchi, 1982, Fig. 6a). In the key the considered species is included without a name.

Papp (1984) followed the opinion of the Japanese dipterologists and incorrectly applied the name *H. stackelbergi* to the new species and, for the second time, described it as *H. stackelbergiana*. Therefore, *H. stackelbergiana* Papp, 1984 is a junior synonym of *H. stackelbergi* Czerny, 1932. I

should note that in the Maritime Terr. two other species, *H. spinicauda* Sasakawa et Ikeuchi (1982) and *H. autumnalis* sp. n., occur that do not differ from *H. stackelbergi* in the wing pattern.

One specific name of Palearctic Homoneura, *H. signata* Enderlein, 1937, is a junior synonym of another one, *H. signata* (van der Wulp), 1881. Taking into account this fact, I name the species described by Enderlein as *Homoneura enderleini* nom. n.

Remm and El'berg (1980) compared the genitalia of *H. patella* Shewell, 1971 and *H. patelliformis* Becker, 1895 and concluded that the species are conspecific. Papp (1984) did not accept such a decision, which is correct because the problem about the synonymy requires a broader faunistic study. So far it is possible to speak about a complex of vicariant forms, among which *H. patelliformis* occupies a central position. The distribution range of this species includes regions of West and Central Europe, southern Ukraine, Russia, and the Caucasus. *H. kortzasi* Tsacas, which has a similar genitalic structure, is known from Greece and Turkmenia. The Middle Eastern species preliminarily determined as *H. patella* is probably an undescribed species (Freidberg and Yarom, 1990). In the eastern Palearctic Region *H. patelliformis* is replaced by two species, *H. patella* (Mongolia) and *H. sychevskayae* sp. n. (Pamir Mountains).

My description of *H. pseudolimnea* (offered in the key, couplet #90) is based on analysis of the Middle Eastern materials. I disagree with the Israeli authors (Freidberg and Yarom, 1990), who placed this species supposedly as *H. limnea* Becker. The latter, however, differs from Middle Eastern populations, which are characterized by a broader feathering of the arista similar to that in *H. filiola* Czerny and *H. lasdini* Czerny. Judging by the description, the Middle Eastern populations differ also from *H. pseudolimnea* and possibly belong to a new species occupying an intermediate position between *H. limnea* and *H. pseudolimnes*.

DESCRIPTIONS OF NEW SPECIES OF *HOMONEURA*

Homoneura autumnalis Shatakin, sp. n.

Material. Holotype ♂. S. Maritime Terr., Ussuriysk Distr., Kamenushka, 19.IX.1987 (Shatakin). Paratypes: 7 ♂s and 13 ♀s, same locality, 3-19.IX.1987 (Shatakin); 2 ♂s and 5 ♀s, S Maritime Terr., Khasan Distr., Kedrovaya Pad', 19.IX.1980 (Shatakin).

Description. ♂. Frons brownish gray, yellowish brown above antennae and along medial line. Face, parafacialia, and cheeks below eyes yellowish brown. Parts beyond cheeks, vertex, and occiput brownish gray. Antennae yellowish brown; 3rd segment brownish gray on apex and along upper margin, 1.4 times as long as wide. Arista dark brown, setae short (feathering of arista as wide as width of basal part). Cheeks 0.20 height of eyes, height of eye 1.5 times length of eye. Proboscis and palpi yellowish brown. Thorax brownish gray. Legs yellowish brown. Anteroventral spines on forefemora present. Wings (Fig. 1d) with system of spots on R_{2+3} , R_{4+5} and M_{1+2} , and also on transverse veins. Halteres yellowish. Abdomen yellowish brown, with narrow dark brown stripes on posterior margin of tergites and with similar, but broader and diffused longitudinal stripe in middle. Genitalia (Fig. 2c) with relatively long aedeagus; hypandrium with broad surstyles; parameres symmetric-short, narrowing to apex, and oriented perpendicular to aedeagus. Chaetotaxy: 1 *h*, 1 *ph*, 2 *npl*, 3 *dc*, first pair on line of suture or slightly anterior of latter one, *ac* of same length arranged in 6 rows, 1 *ppl*, 1 *mspl*, 2 *stpl*.

Length of body 3.1 mm.

♀ not differing from ♂. Length of body 3.2-3.7 mm.

Comparison. In the position of spots on the wing *H. autumnalis* sp. n. is similar to *H. stackelbergi* Czerny and *H. spinicauda* Sasakawa et Ikeuchi. The new species differs from the former in that its acrostichal setae have equal length, and differs from the latter in the smaller width of the feathering of the arista. In the structure of surstyles *H. autumnalis* appears similar to *H. stigmata* Papp (Fig. 2d), which, however, is characterized by a shorter and broader aedeagus. The latter species differs as well in the pattern of the wing in the presence of a brown spot between apices of veins Sc and R₁.

Homoneura insularis Shatalkin, sp. n.

Material. Holotype ♂, Kuril Is., Kunashir, vicinity of Mendeleyev Volcano, 28.VI.1985 (Churkin). Paratypes: 1 ♂ and 3 ♀s, same locality, 21.VI-27.VII.1985 (Churkin); 2 ♂s and 1 ♀, Kunashir, Alekhino, 3.VI-10.VII.1968 (Narchuk); 1 ♂, same locality, 15.VI.1973 (Kerzhner).

Description. ♂. Frons dark gray, narrow yellowish brown above antennae and on margin of eyes, at base of orbital setae with small pale gray spots and same color medial stripe widening to ocellar triangle. Face brownish yellow and parafacialia yellowish. Cheeks, areas beyond cheeks, and occiput gray. Antennae yellowish brown, slightly darkened on upper margin of 3rd segment, which 1.5 times as long as wide. Arista dark brown, with microscopic setae; feathering not wider than width of widened basal part of arista. Cheeks 0.20 height of eye; width of eye 1.3 times length. Proboscis and palpi yellowish brown. Thorax gray. Mesonotum with 4 narrow weakly developed brownish stripes beyond suture. Legs yellowish brown only on apex; forefemora and midfemora with diffused gray areas in basal half. Wing with system of spots as in Fig. 1j. Halterae yellow. Abdomen pale gray, with darker medial stripe and same color lateral spots along posterior margins of tergites. Genitalia as in Fig. 2e. Hypandrium with long surstyles emarginate on apes. Parameres asymmetric: right paramere (shown in figure), ac long and relatively narrow, left paramere half length, but broader. Chaetotaxy: 1 h, 1 ph, 2 npl, 1+2 dc in 6 rows, actually of one length, 1 ppl, 1 mspl and 2 stpl.

Length of body 3.7 mm.

♀. Not differing from ♂ in major characters. Areas of abdomen between middle of dark stripe and lateral spots brownish yellow (pale gray in ♂). Length of body 3.5-4.0 mm.

Comparison. *H. insularis* sp. n. is the third species known in the Palearctic possessing similar system of spots on wings. The new species differs from *H. shatalkini* Papp from the southern Maritime Terr. and from *H. aulatheca* Sasakawa et Ikeuchi from the Japanese islands in the dark gray hindfemora. It also has different genital structure.

Homoneura sasakawai Shatalkin, sp. n.

Material. Holotype ♂, Kuril Is., Kunashir Id., Golovnino, 28.IX.1968 (Gorodkov). Paratypes: 7 ♂s and 14 ♀s, same locality (Gorodkov).

Description. ♂. Head yellow. Antennae yellow, 3rd segment evenly convex on upper margin, 1.3 times as long as wide. Arista yellow, with microscopic setae, actually bare. Eyes round, 1.2 times as high as long. Cheeks relatively high, 1/3 height of eye. Proboscis and palpi yellow. Thorax yellow. Legs yellow. Wings hyaline, both transverse veins with insignificant brownish marginal stripe. Last segment of M₁₊₂ almost twice as long as preceding segment. Halterae yellow. Abdomen yellow. Sternite V with very small black spines on posterior margin (Fig. 3b). Genitalia form trough; surstyles saber-shaped; parameres symmetric, in form of broad short rectangular plates. Chaetotaxy: 1 h, 1 ph, 2 npl, 0+3 dc, ac in 4 rows, setae (in 3-4 pairs) of 2 middle rows distinctly larger than lateral rows, but

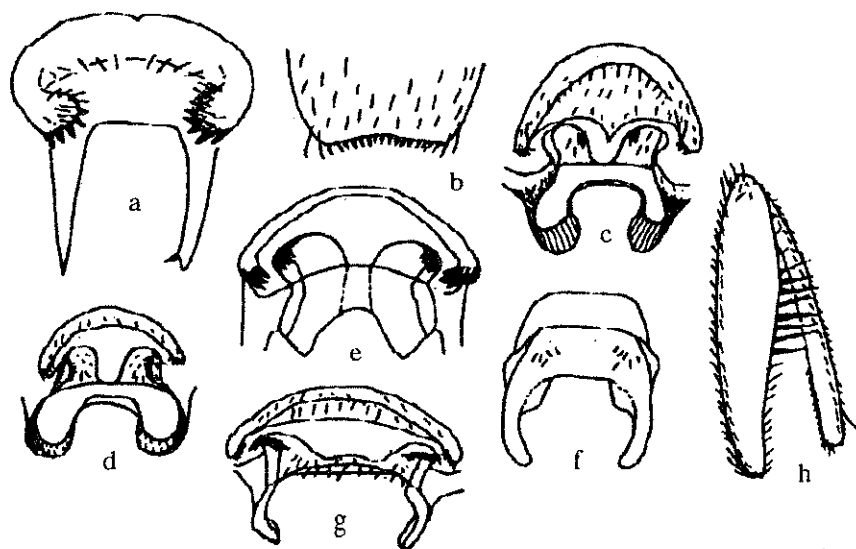


Fig. 3. Details of structure of species of *Homoneura*: a-h) pregenital sternites of ♂s, h) hindfemur and tibia of *H. subnotata* Papp; a) *H. amurensis* Shatalkin, b) *H. sasakawai* sp. n., c) *H. christophi* Beck., d) *H. tesquae* Beck., e) *H. dentiventris* Cz., f) *H. shewelliana* Papp, g) *H. remmi* Papp.

smaller than specular setae. Lateral sides of thorax with 1 *ppl*, 1 *mspl* and 2 *stpl*, among which anterior seta distinctly weaker than posterior seta.

Length of body 3.5 mm.

♀ not differing from ♂. Cerci with 8-10 robust black spines. Length of body 3.1-3.4 mm.

Comparison. Sasakawa and Ikeuchi (1983) erroneously placed this species in *H. externa* Czerny, which had been described by ♂ and ♀ from southern Maritime Terr. I did not find a ♂ of *H. externa* in the collection of ZIS. ♀ of this species, however, differs well from *H. sasakawai* sp. n. in the distinctly feathered arista, distinctly longer medial acrostichalia, comparable in size with prescutellar setae, cerci without armament, bearing only black setae. Finally the 3rd antennal segment has sloped emargination on upper (dorsal) margin. I will note that *H. externa* is close to *H. modesta*.

Phylogenetically *H. sasakawai* is close to *H. septentrionalis* Lw. ♂s of both species bear black spines on posterior margins of sternite V, which in the new species are slightly smaller and are arranged more densely (Fig. 3b). Cerci of ♀s have black spines. In *H. septentrionalis* these spines are larger and their number is smaller (3-5). The latter species is larger (3.5-4.0 mm) and has arista with width of feathering distinctly wider than width of its basal part.

The possibility that ♂ of *H. externa* is conspecific to *H. sasakawai* is unlikely. It seems unlikely that Czerny could mistakenly describe ♂ and ♀ of different species under the same name. While the ♂ is not known, I designate a ♀ as a lectotype of *H. externa* with two pinned labels. The upper label: "Tigrovaya, Suchan Distr., Uss. Terr. 8.VI.1927, Stackelberg"; the second label: "*H. externa* (written in black ink), ♀, det. Czerny."

The new species is named in honor of the noted Japanese dipterologist, Mitsukhiro Sasakawa.

Homoneura sychevskayae Shatalkin, sp. n.

Material. Holotype ♂. W Pamir Mts., Khorog, vicinity of botanical garden, 2400 m elevation, 25.VII.1960 (Zimina). Paratypes: ♂ and ♀, same locality, 18.VIII.1962 (Sychevskaya).

Description. ♂. Head yellow. Antennae yellow, 3rd segment 1.4 times as long as wide. Arista dark brown, at base more yellow, with sparse microscopic setae, virtually bare. Eyes with scattered microscopic setae. Head moderately flattened, height 1.7 times length (measured from lateral posterior margin of eye). Face in lower part slightly convex and concave under antennae. Cheeks relatively high, 1/4 height of eye, and height of eye 1.5 times length. Proboscis and palpi yellow. Thorax and legs yellow. Forefemora with row of sternoventral spines numbering 15-16. Wings slightly yellowish with yellow veins. Transverse veins without brownish marginal stripe. Terminal segment of M_{1+2} 1.6 times as long as preceding segment. Abdomen yellowish. Genital (Fig. 2i) large and strongly sclerotized. Chaetotaxy: 1 *h*, 2 *ph*, 2 *npl*, 0+3 *dc*, *ac* bristlelike, of equal length, arranged in 8 rows, 1 *ppl*, 2 *mspl* and 2 *stpl*.

Length of body 4.2 mm.

♀ not differing from ♂. Cerci with dense, long brown setae. Length of body 4.1 mm.

Comparison. The new species is close to *H. patelliformis* Becker, but it differs considerably in the larger size, different number of rows of acrostichal setae, and genitalic structure. The anteroventral crest on forefemora on the new species is denser, formed by 15-16 robust spines (versus 10-11 in *H. patelliformis*).

The species is named in honor of V. I. Sychevskaya, who studied the dipterofauna of Central Asia for many years.

KEY TO PALEARCTIC SPECIES OF *HOMONEURA*

- 1 (75). Wings partly or completely brownish or with pattern of spots.
- 2 (3). Wings dark brown with numerous clear spots (Fig. 1a). Mesonotum gray, with great number of brown spots. Japan, Korea. — S Maritime Terr. *H. euaresta* (Coquillet)
- 3 (2). Wings with different pattern.
- 4 (22). Wings with brown stripe or broadly darkened on anterior margin.
- 5 (6). Mesonotum with pair of narrow brown stripes, sides of thorax with brown stripe from pleura to base of wings and same, but less distinct, stripe in upper part of sternopleura; 1+3 *dc*. Wings, besides costal darkened area, with spots on transverse veins, in middle of R_{2+3} and with apical spots on R_{2+3} and R_{4+5} . Alps. *H. octostriata* Czerny
- 6 (5). Species with different combination of characters.
- 7 (8). Frons with lanceolate brown spot, cheeks with dark brown spot; 1+2 *dc*. Morocco.
..... *H. licina* Seguy

- 8 (7). Species with different combination of characters.
- 9 (10). Arista with long setae, feathering as wide as width of 3rd antennal segment. *ta* without dark marginal stripe. Japan. *H. hymenophallus* Sasakawa et Ikeuchi
- 10 (9). Arista short-pubescent.
- 11 (12). 3rd antennal segment black. Wing sapromyzoid: small black spines on *C* ending at point situated less than half distance between R_{2+3} and R_{4+5} . Body yellow, notopleura with brownish marginal stripe. S Maritime Terr. *H. amphibola* (Shatalkin), comb. n.
- 12 (11). Antennae yellow.
- 13 (14). Mesonotum in middle, restricted by level of posthumeral setae, and also sternopleura below sternopleural setae gray. Color of other parts of body yellow. Arista with microscopic decumbent setae.
- 14 (13). Body completely yellow. Width of feathering of arista slightly greater than or equalling width of widened basal part of arista.
- 15 (16, 17). *ac* arranged in 2 rows. Europe and N America. *H. transversa* (Wiedemann)
- 17 (15, 17). *ac* arranged in 4 rows. Kuril Is. (Shikotan). *H. quadrifaria* Shatalkin
- 17 (15, 16). *ac* arranged in 6 rows.
- 18 (19). Wing sapromyzoid. Mongolia.—Transbaikalia, Amur Region, and Maritime Terr.
..... *H. kaszabi* Shewell (*Sapromyza abhorens* Shatalkin, syn. n)
- 19 (18). Wing homoneuroid: black spines on *C* developed as far as apex of R_{4+5} .
- 20 (21). *ta* and *tp* with brown foggy marginal stripe, spot on *ta* connected with costal darkened area. Palpi brown. Abdominal sternite VI of ♂s on posterior margin with 12-13 small spinose setae arranged in form of fence. Japan. *H. lagena* Sasakawa et Ikeuchi
- 21 (20). Only *tp* with brown marginal stripe. Palpi yellow. Abdominal sternite VI of ♂s without spinose setae. China (Sychuan). *H. graha* Malloch
- 22 (4). Wings with different pattern.
- 23 (26). Wings brown between R_1 , M_{3+4} and level of *tp*. Cell r_1 , except apically, white (Fig. 1b, c). Palpi black on apex.
- 24 (15). Wing as in Fig. 1b. Japan.—S Maritime Terr. *H. albomarginata* Czerny
- 25 (24). Wing as in Fig. 1c. Korea, China.—S Maritime Terr. *H. kalthoffi* Hendel
- 26 (23). White stripe along costal margin of wing absent. Wings with system of isolated or contiguous dark spots.
- 27 (54). Apices of veins *Sc* and R_1 without brown spot.

- 28 (35). R_{4+5} only with apical spot (Fig. 1d).
- 29 (30). Palpi on apex black. 3rd antennal segment darkened on apex. Mesonotum with pair of brown stripes along line of *dc*. *ac* arranged in 4 rows. Japan, Korea, China.
..... *H. brevicornis* (Kertész) (= ? *H. alini* Hering)
- 30 (29). Palpi completely yellow. *ac* arranged in 6 rows.
- 31 (32). Acrostichal setae of medial rows distinctly greater than setae of lateral rows. Aedeagus (Fig. 2a) with characteristic pattern of sclerotization. Korea.—Maritime Terr., Amur Prov. *H. stackelbergi* Czerny (*H. stackelbergiana* Papp, syn. n.)
- 32 (31). Even acrostichal setae of medial rows larger than lateral setae, then only insignificantly.
- 33 (34). Feathering of arista half width of 3rd antennal segment. Surstyles with extended slender, dorsally oriented process (Fig. 2b). Japan, Korea.—Maritime Terr.
..... *H. spinicauda* Sasakawa et Ikeuchi
- 34 (33). Feathering of arista slightly wider than or equal to width of basal part of arista. Surstyles broad, without dorsal process (Fig. 2c). Wing as in Fig. 1d. Maritime Terr.
..... *H. autumnalis* Shatalkin, sp. n.
- 35 (28). R_{r+5} , besides apical spot, with 1-3 more spots.
- 36 (41). R_{4+5} with 1 spot (Fig. 1e).
- 37 (38). Forefemora without anteroventral crest of spines, *ac* arranged in 4 rows. Wing as in Fig. 1e. Forest zone of Palearctic. *H. tenera* Lw.
- 38 (37). Forefemora with anteroventral crest of spines, *ac* arranged in 6-10 rows.
- 39 (40). *ta* without dark marginal stripe. *ac* arranged in 8-10 rows. China, Sychuan.
..... *H. chinensis* Malloch
- 40 (39). *ta* with dark marginal stripe. *ac* arranged in 6 rows. Pattern of wing variable: spots on longitudinal veins may be represented only by traces of darkening. Japan, Formosa.
..... *H. variinervis* (Kertész)
- 41 (36). R_{4+5} with 2-3 spots.
- 42 (45). Arista short-pubescent.
- 43 (44). Frons in posterior part black, face yellow, cheeks with black spot. Thorax yellowish gray. Apical spot on R_{2+3} connected with spot situated below R_{4+5} . China, Manchuria.
..... *H. variipennis* Czerny
- 44 (43). Body completely yellow. Apical spot on R_{2+3} not connected with spot on R_{4+5} (Fig. 1f). Sternite V of ♂ with pair of large plates bearing black spinose setae on margin. Forest zone of Palearctic. *H. lamellata* Becker
- 45 (42). Arista long-feathered: feathering as wide as width of 3rd antennal segment.

- 46 (53). Size smaller: 3.0-3.8 mm. *ac* arranged in 4 rows. Pattern of wing almost as in *H. lamellata*, but preapical spot on R_{4+5} situated at projection across middle of spot on R_{2+3} and even apically of it. Hindfemora of ♂s with postventral row of long black spinose setae.
- 47 (48). Only ♂s (♀s do not differ reliably). Spinose setae present also on hindtrochanters. Algeria, Tunisia. *H. tunisica* Papp
- 48 (47). Only ♂s (♀s do not differ reliably). Hindtrochanters only with slender setae.
- 49 (50). Spinose setae short (shorter than diameter of tibia) and robust; forming longer row and absent only in apical 1/4 of hindfemur. W and C Europe. — Krasnodar Terr.
..... *H. nota* Fallén
- 50 (49). Spinose setae longer than diameter of tibia and absent on basal half of hindfemur.
- 51 (52). Number of spinose setae on hindfemur equal to 7-9 (Fig. 3h), and larger than in following species. C Europe. — Crimea. *H. subnotata* Papp.
- 52 (51). Number of spinose setae equal to 4-5, and shorter. Algeria and Tunisia.
..... *H. maghrebi* Papp
- 53 (46). Size larger: 5.0-6.0 mm. *ac* arranged in 8-10 rows. Wings usually with 3 spots on R_{4+5} in addition to apical spot. Hindfemora of ♂s without spinose setae. Japan and Formosa.
..... *H. latifrons* Malloch
- 54 (27). Apex of veins Sc and R_1 with brown spot.
- 56 (57). Midtibia with one spoor. Abdominal sternite VI of ♂s with 3 lobes posteriorly, with 4 robust spinose setae on middle lobe. Japan. *H. triphylla* Sasakawa et Ikeuchi
- 57 (56). Midtibia at least with 2 robust spoors. Abdominal sternite VI of ♂s of different shape.
- 58 (59). Species with large brown spot on wing: spot on R_{2+3} 0.7 × 0.6 mm. Arista short-pubescent. Korea. *H. koreana* Papp
- 59 (58). Spots on wing smaller: spot on R_{2+3} 0.4 × 0.3 mm. Feathering of arista 1/3 of 3rd antennal segment and longer.
- 60 (61). *ac* arranged in 8 rows. Hypandrium on ♂s with broad surstyles (Fig. 2d). Korea. — Maritime Terr. *H. stigmata* Papp
- 61 (60). *ac* arranged in 6 rows. Hypandrium with extended, relatively narrow, dorsally oriented surstyles, round apex of which bearing small tooth directed toward cerci. Japan.
..... *Homoneura* sp. (*H. stackelbergi* sensu Sasakawa et Ikeuchi)
- 62 (55). R_{4+5} with 1-2 spots between *ta* and apical spot.
- 63 (70). R_{4+5} , besides apical spot, with 1 more spot.
- 64 (65). Wings with basal spot between bases of veins R and M . (Fig. 1g). Palpi black on apex. S Maritime Terr. *H. pictipennis* Czerny

- 65 (64). Wings without basal spot.
- 66 (67). Arista short-pubescent: width of feathering equaling width of basal part. Wing as in Fig. 1h. Japan, Korea, China—Maritime Terr., Khabarovsk Terr., Amur Prov. *H. mairhoferi* Czerny (*H. lushanica* Papp, syn. n.)
- 67 (66). Feathering of arista 3/4 width of 3rd antennal segment and longer.
- 68 (69). Mesonotum without stripes. *ac* arranged in 8 rows. *ta* without distinct marginal stripe (Fig. 1i). Japan. *H. hirayamae* Matsumura
- 69 (68). Mesonotum with 4 brown stripes. *ac* arranged in 6 rows. *ta* with distinct brown spot. China, Manchuria. *H. enderleini* nom. n. (*H. signata* Enderlein)
- 70 (63). R_{4+5} , besides apical spot, with 2 more spots (Fig. 1j).
- 71 (72). Hindfemora dark gray, narrow yellow only on apex. Genitalia as in Fig. 2e. Kuril Is., Kunashir Id. *H. insularis* sp. n.
- 72 (71). Hindfemora yellow, sometimes with grayish spots or smears.
- 73 (74). Surstyles of ♂ (Fig. 2f) broad, on upper margin with 3 teeth. Spermathecae of ♀s round. Japan (?).—Maritime Terr. and Khabarovsk Terr. *H. aulatheca* Sasakawa et Ikeuchi
- 75 (1). Wings hyaline; rarely transverse veins with brownish marginal stripe and apex of wings slightly darkened.
- 76 (81). Body black.
- 77 (78). Halterae bicolored: Clava black, pedicel yellowish. *ac* arranged in 6 rows. Japan. *H. pyriformis* Sasakawa et Ikeuchi
- 78 (77). Halterae completely yellow. Number of rows of acrostichal setae different.
- 79 (80). Size larger: 5.0-5.5 mm. Face and frons black with gray pollen. *ac* arranged in 10 rows. Japan. *H. trifurcata* Sasakawa et Ikeuchi
- 80 (79). Size smaller: 2.6-2.7 mm. Face and frons yellow. *ac* arranged in 4 rows. S Maritime Terr. *H. fulgida* Shatalkin
- 81 (76). Body yellow or yellowish brown.
- 82 (101). Feathering of arista as wide or wider than 3rd antennal segment.
- 83 (88). Parafacialia with silver sheen (in dorsal view).
- 84 (85). Frons in posterior half, 3rd segment of antennae, palpi, and at least hindfemora in apical half brown. Japan. *H. repanda* Sasakawa et Ikeuchi
- 85 (84). Frons, palpi, and legs completely yellow. 3rd antennal segment with somewhat developed darkened area in apical 1/3.

- 86 (87). Size larger: 3.1-3.4 mm. 3rd antennal segment with weakly darkened area in apical 1/3. Japan, Formosa, China, Vietnam, Ceylon, USA (introduced). *H. unguiculata* (Kertész) (*H. japonica* Czerny)
- 87 (86). Size smaller: 2.5 mm. 3rd antennal segment black in apical 1/3. Philippines, Malaysia, Indonesia, India.—Khabarovsk Terr. (Khabarovsk). *H. affinis* Malloch
- 88 (32). Parafacialia without silver sheen.
- 89 (92). *ac* arranged in 4 rows.
- 90 (91). 1+2 *dc*. Cheeks high, 1/3 height of eye. 3rd antennal segment broadly rounded apically. Pregenital sternite of ♂s V-shaped and without lateral spine-bearing lobes. Tunisia, Middle East. *H. pseudolimnea* Papp
- 91 (90). 0+3 *dc*. Cheeks low, one-ninth of height of eye. 3rd antennal segment with angulately extended apex. Pregenital sternite of ♂s with pair of spine-bearing lateral lobes. Mountains of C Asia (Pamirs). *H. lasdini* Czerny
- 92 (89). *ac* arranged in 6 rows.
- 93 (94). Mesonotum anteromedially with a group of setae arranged in 8 rows. Japan. *H. panniculata* Sasakawa et Ikeuchi
- 94 (93). 3rd antennal segment in apical 1/3 saturated black. Arista dorsally with 2-3 rows of black setae. S Maritime Terr. *H. assidua* Shatalkin
- 96 (95). Antennae completely yellow. Arista with dorsal setae arranged in single row.
- 97 (98). Midtibia with 1 spur. Genitalia weakly sclerotized, yellow; cerci black; aedeagus with pair of lobes strongly sclerotized along ventral margin (Fig. 2g). Korea.—Maritime Terr. and Khabarovsk Terr., Amur Prov. *H. filiola* Czerny
- 98 (97). Midtibia with 2 spurs.
- 99 (100). Arista with shorter setae: length of dorsal setae 0.5-0.6 width 3rd antennal segment. Genitalia very similar to those in *H. filiola*, but aedeagus without distinct lobes. Japan. *H. yamagishii* Sasakawa et Ikeuchi
- 100 (99). Arista with broader feathering: length of dorsal setae close to width of 3rd antennal segment. In genitalic structure close to 2 preceding species, but in aedeagus with pair of large lateral spine-bearing lobes on apex. Japan. *H. spinosa* Sasakawa et Ikeuchi
- 101 (82). Feathering of arista narrower than width of 3rd antennal segment.
- 102 (131). Both transverse veins with brownish marginal stripe or, besides, marginal stripe of transverse veins, wings apically slightly darkened.
- 103 (106). Apex of wing or endings of veins R_{2+3} , R_{4+5} and M_{1+2} slightly brownish.
- 104 (105). *ac* large and arranged in 2 rows. Endings of longitudinal veins slightly brownish. Europe. *H. limnea* Becker

- 105 (104). *ac* arranged in 4 rows, setae of medial rows larger than lateral setae. Apex of wing slightly brownish. Europe. *H. biumbata* Loew
- 106 (103). Apex of wing or endings of longitudinal veins without darkened area.
- 107 (108). Abdominal tergite V with pair of lateral black spots. Japan.
..... *H. tridentata* Sasakawa et Ikeuchi
- 108 (107). Abdomen without spots.
- 109 (110). 1+3 *dc*. Anteroventral crest on forefemora represented by slender setae, but not by spines. Lateral lobes of abdominal sternite V of ♂ with robust setae (Fig. 3a). Amur Prov.
..... *H. amurensis* Shatalkin
- 110 (109). 3 *dc*. Anteroventral crest on forefemora consisting of robust spines. Sternite V of ♂ with different structure.
- 111 (112). 1+2 *dc*. (see couplet 90). Tunisia. *H. pseudolimnea* Papp
- 112 (111). 0+3 *dc*.
- 113 (114). *ac* large, arranged in 2 rows. Vein *R* before division into R_{2+3} and R_{4+5} darker than adjacent areas. Sternite V of ♂s with crest of short, robust spines. Cerci of ♀s with 3-5 robust black spines. Width of feathering of arista distinctly greater than width of basal part (unlike in *H. sasakawai*). Japan (?), China (Manchuria), Mongolia.—Maritime and Khabarovsk Terrs., Amur Prov., Transbaikalia. *H. septentrionalis* Loew
- 114 (113). *ac* arranged in 4-6 rows.
- 115 (124). Medial acrostichal setae considerably larger than lateral setae.
- 116 (121). At least 1 pair of medial *ac* as long as prescutellar setae.
- 117 (118). Width of feathering of arista distinctly greater than width of its basal part. Sternite IV of ♂s with conically extended process in middle of posterior margin. Europe, Siberia (Yakutia). *H. modesta* Loew (*H. rectangulata* Czerny syn. n.)
- 118 (117). Feathering of arista equalling width of its basal part. 3rd antennal segment with sloped emargination on upper margin. Cerci of ♀s without spines, only with black setae. Maritime Terr. *H. exera* Czerny
- 120 (119). Width of feathering of arista smaller than width of its basal part. 3rd antennal segment evenly convex on upper and lower side. Sternite V of ♂ with short spines on posterior margin (Fig. 3b). Genitalia as in Fig. 2h. Cerci of ♀s with 8-10 short black spines. Japan. Kuril Islands. *H. sasakawai* (*H. exera* sensu Sasakawa et Ikeuchi)
- 121 (116). Medial *ac* smaller than prescutellar setae.
- 122 (123). Hindtrochanters with brush of small black spines. Feathering of arista as wide or narrower than width of its basal part. Sternite VI of ♂s with pair of lobes bearing 4 spines. Amur Prov. *H. ozerovi* Shatalkin

- 123 (122). Hindtrochanters without brush of spines. Abdominal sternite VI of ♂s strongly emarginate on posterior margin with 3 pairs of robust setae on sides and in middle. Japan.
..... *H. matsumurai* Sasakawa et Ikeuchi
- 124 (115). Medial acrostichal setae as long or slightly longer than lateral setae.
- 125 (126). Width of feathering of arista smaller than width of its basal part. Sternite VI of ♂s with 6-8 robust spines on posterior margin. Transpalearctic species. *H. interstincta* (Fallén)
- 126 (125). Width of feathering of arista distinctly greater than width of its basal part.
- 127 (130). 6 rows of acrostichalia. Sternite VI of ♂s with 2 pairs of lobes (anterior and posterior) (Fig. 3c, d).
- 128 (129). Feathering of arista equal or slightly greater than half width of 3rd antennal segment. Anterior lobes of sternite V of ♂s with 2-3 medial spines (Fig. 3c). Europe.
..... *H. christophi* Becker
- 129 (128). Feathering of arista smaller than half of width of 3rd antennal segment. Anterior lobes of sternite VI of ♂s with lateral spines (Fig. 3d). Europe. *H. tesquae* Becker
- 130 (127). 4 rows of acrostichalia. Posterior lobes of sternite VI of ♂s weakly developed. Spines on sternites V and VI of ♂ larger (Fig. 3e). Mountains of C Asia. *H. dentiventris* Czerny
- 131 (102). Apex of wing and transverse veins not darkened.
- 132 (133, 134). 1+2 *dc*. Feathering of arista smaller than width of its basal part. Europe.
..... *H. consobrina* Zetterstedt
- 133 (132, 134). 1+3 *dc*. Feathering of arista distinctly wider than width of its basal part. England.
..... *H. hospes* Allen
- 134 (132, 133). 0+3 *dc*.
- 135 (152). *ac* of medial rows equal to those of lateral rows.
- 136 (137). *ac* arranged in 8 rows. Short setae on mesonotum (including *ac*) bristlelike. Genitalia as in Fig. 2i. Tajikistan. *H. sychevskayae* sp. n.
- 137 (136). Number of rows of acrostichal setae different.
- 138 (149). *ac* arranged in 6 rows.
- 139 (142). Feathering of arista distinctly greater than width of basal part.
- 140 (141). Color of body orange; occiput with brown spot. Hindtrochanter of ♂s with ventral process in form of broad plate obliquely truncate on apex; cerci of ♂s large, with fan of long setae on margin. Spain. *H. ericpoli* Carles-Tolra
- 141 (140). Color of body yellow. Hindtrochanters simple; cerci of medium size, without fan of long setae. Hungary, Romania, Spain. *H. thalhammeri* Papp

- 142 (139). Feathering of arista as wide as basal part or narrower.
- 143 (145). Eyes with short (seen at high magnification) scattered setae.
- 144 (145). Frons in anterior half covered with small setae. Japan.
..... *H. sphincta* Sasakawa et Ikeuchi
- 145 (144). Frons in anterior half with sparse setae. Japan. *H. securigera* Sasakawa et Ikeuchi
- 146 (143). Eyes bare.
- 147 (148). European species. Cheeks relatively low, 0.20 height of eye. C Europe.—Crimea and
Caucasus. *H. patelliformis* Becker
- 148 (147). E Palearctic species. Cheeks higher, 0.40 height of eye. Mongolia. *H. patella* Shewell
- 149 (138). *ac* arranged in 4 rows.
- 150 (151). Short setae on mesonotum bristlelike. Mongolia. *H. spinidorsum* Shewell
- 151 (150). Short setae on mesonotum weak. Greece. Turkmenia (?). *H. kortzasi* Tsacas
- 152 (135). *ac* of medial rows distinctly larger than those of lateral rows.
- 153 (154). Arista bare. Abdominal sternite VI of ♂s with row of black spines by with small interval
in middle situated on posterior margin. Japan. Kuril Is.
..... *H. crucifera* Sasakawa et Ikeuchi
- 154 (153). Feathering of arista wider than width of basal part.
- 155 (156). Setae on arista shorter. Pregenital sternites of ♂s without spines (Fig. 3f). Asiatic spe-
cies: Mongolia. - Siberia (Omsk). *H. shewelliana* Papp
- 156 (155). Setae on arista longer. Pregenital sternites of ♂s with spines. European species.
- 157 (158). Only ♂s (♀s reliably not distinguishable): anterior lobe of abdominal sternite VI slen-
der, with apical parts curved medially (Fig. 3g). E Europe. *H. remmi* Papp
- 158 (157). Only ♂s: anterior lobe of abdominal sternite VI in form of bubble, bearing laterally
arranged spines (as in *H. tesquae*); posterior lobes of sternite broad and straight. W and C
Europe. *H. minor* Becker

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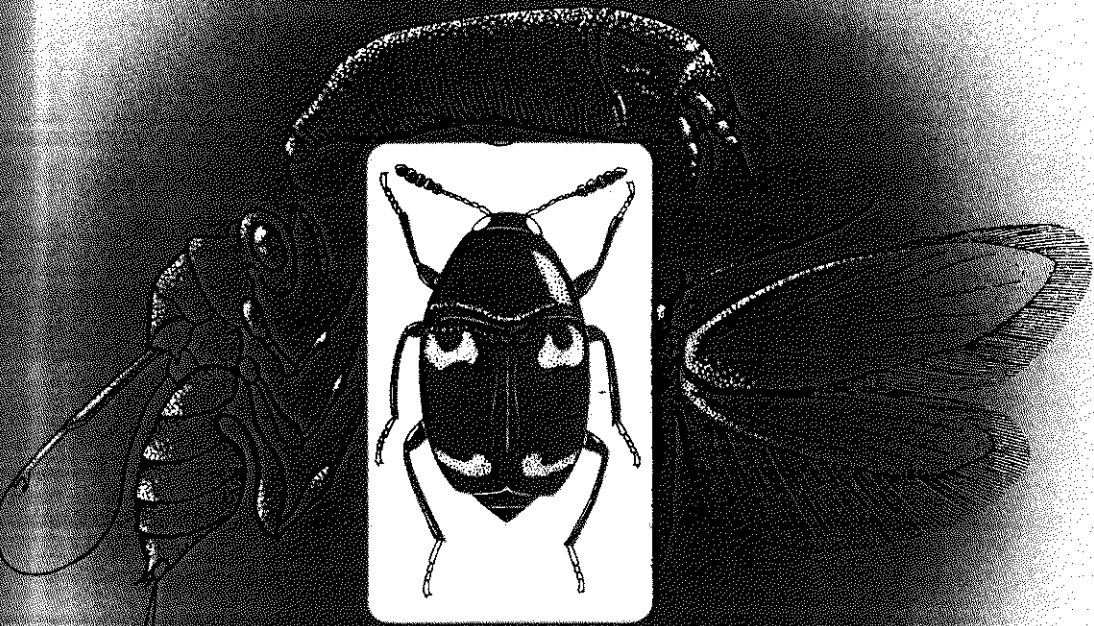
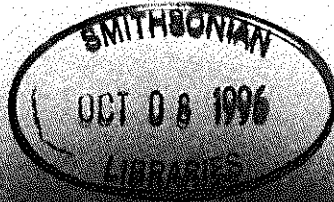
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