

Far Eastern Entomologist

Дальневосточный энтомолог

Journal published by Far East Branch
of the Russian Entomological Society
and Laboratory of Entomology,
Institute of Biology and Soil Science,
Vladivostok

Number 150: 1-24

ISSN 1026-051X

August 2005

CONTRIBUTIONS TO THE HALICTID FAUNA OF THE EASTERN PALAEARCTIC REGION: GENUS *HALICTUS* LATREILLE (HYMENOPTERA: HALICTIDAE, HALICTINAE)

Yu. A. Pesenko

Zoological Institute, Russian Academy of Sciences, 199034, St. Petersburg, Russia

The paper presents the results of the taxonomic study of the bees of the genus *Halictus* s. str. mostly deposited at the Zoological Institute of the Russian Academy of Sciences (St. Petersburg), Institute Biology and Soil Science of the Russian Academy of Sciences (Vladivostok), and Institute of Zoology of Academia Sinica (Beijing, China). In the total, 10 species of the genus *Halictus* were revealed in the Eastern Palearctic Region: *H. brunnescens* (Eversmann), *H. compressus* (Walckenaer), *H. hedini* Blüthgen, *H. maculatus* Smith, *H. minor* Morawitz, *H. quadricinctus* (Fabricius), *H. rubicundus* (Christ), *H. senilis* (Eversmann), *H. stachii* Blüthgen, and *H. tsingtouensis* Strand. A key to all of them is given. An annotated list of the species includes data for each of species on its synonymy, general geographical distribution, published records from the Eastern Palearctic Region, and the material examined.

KEY WORDS: Halictidae, *Halictus*, Eastern Palearctic Region, taxonomy, key, distribution.

Ю. А. Песенко. Материалы к фауне галиктид Восточной Палеарктики: род *Halictus* Latreille (Hymenoptera: Halictidae, Halictinae) // Дальневосточный энтомолог. 2005. N150. С. 1-24.

В статье представлены результаты таксономического исследования пчел рода *Halictus* s. str., хранящихся преимущественно в коллекциях Зоологического института РАН (Санкт-Петербург), Биолого-почвенного института ДВО

РАН (Владивосток) и Института зоологии Китайской академии наук (Пекин). Всего в Восточной Палеарктике выявлено 10 видов рода: *H. brunnescens* (Eversmann), *H. compressus* (Walckenaer), *H. hedini* Blüthgen, *H. maculatus* Smith, *H. minor* Morawitz, *H. quadricinctus* (Fabricius), *H. rubicundus* (Christ), *H. senilis* (Eversmann), *H. stachii* Blüthgen и *H. tsingtouensis* Strand. Для всех этих видов составлена определительная таблица. Аннотированный список видов включает данные об их синонимии, общем географическом распространении, опубликованные сведения о встречаемости в Восточной Палеарктике и исследованный материал.

Зоологический институт РАН, 199034, Санкт-Петербург, Россия.

INTRODUCTION

This paper is the first of a series treating the Eastern Palaearctic Halictidae. In this series the Eastern Palaearctic Region is considered as a part of Asia located eastwards from about 90° E and northwards from about 35° N (in China; 32° N in Japan). This territory includes Eastern Siberia (Siberia eastwards Yenisei River, from Tuva in the south), Russian Far East (including Sakhalin Island and Kuril Islands), Mongolia, the north (northern half of Qinghai, Gansu and Shaanxi, Neimenggu, Ningxia, Shanxi) and northeast (Hebei, Shandong, Liaoning, Jilin, and Heilongjiang) of China, Korean Peninsula, and Japan excluding the Ryukyu (Nansei) Islands. The traditional term “Middle Asia” is used in Russian references as a name for the territory occupied by Turkmenistan, Uzbekistan, Tajikistan, and Kyrgyzstan combined.

The genus *Halictus* Latreille, 1804 in the volume as defined by Pesenko (1984a, 2000, 2004) is mostly Palaearctic group in its occurrence and includes 90 currently recognized species. Only five species inhabit North America, including the Holarctic *H. rubicundus* (Christ, 1791), and only five species, *Halictus acrocephalus* Blüthgen, 1926, *H. asperatus* Bingham, 1898, *H. constrictus* Smith, 1853, *H. fimbriatus* Smith, 1853, and *H. latisignatus* Cameron, 1908 are Oriental (northern Oriental) in occurrence. The majority of species are Mediterranean and Central Asian. In comparison with other genera of the subtribe Halictina, the genus *Halictus* includes species greatly differing in the structure of the male genitalia. This genus is a sister group in relation to the widespread genus *Seladonia* Robertson, 1918 (Pesenko, 2004). Just the structure of the male genitalia was taken as a basis for the subgeneric classification of the genus *Halictus* by Pesenko (1984a). According to this classification all species are divided into 12 subgenera: *Acalcaripes* Pesenko, 1984; *Argalictus* Pesenko, 1984; *Halictus* s. str.; *Hexataenites* Pesenko, 1984; *Lampralictus* Pesenko, 1984; *Monilapis* Cockerell, 1931; *Nealictus* Pesenko, 1984; *Odontalictus* Robertson, 1918; *Platyhalictus* Pesenko, 1984; *Protohalictus* Pesenko, 1985; *Ramalictus* Pesenko, 1984; and *Tythhalictus* Pesenko, 1984.

Of 17 behaviorally known species of the genus, 14 species belonging to different subgenera are primitively eusocial. All species are polyleges and construct nests in soil. For nesting, the majority of them prefer warm dry areas, especially not overgrown places.

Only the following 10 species of the genus *Halictus* can be considered inhabitants of the Eastern Palaearctic Region as defined above: *H. brunnescens* (Eversmann), *H. compressus* (Walckenaer), *H. hedini* Blüthgen, *H. maculatus* Smith, *H. minor* Morawitz, *H. quadricinctus* (Fabricius), *H. rubicundus* (Christ), *H. senilis* (Eversmann), *H. stachii* Blüthgen, and *H. tsingtouensis* Strand. The information (original data) on the occurrence of the species above in the Eastern Palaearctic Region is contained in the following publications arranged by chronology:

- Morawitz, 1880 (“*H. fulvipes*” = *H. senilis* from “northwestern Mongolia”);
 Morawitz, 1890 (*H. quadricinctus* and *H. rubicundus* from China);
 Strand, 1910 (*H. tsingtouensis* from China);
 Cockerell, 1924 (“*H. tetrazonius*” = *H. tsingtouensis* from Primorskii Territory of Russia);
 Cockerell, 1925 (“*H. tetrazonius*” = *H. tsingtouensis* from Primorskii Territory of Russia);
 Cockerell, 1929 (*H. quadricinctus*, *H. rubicundus*, and “*H. tomentosus*” = *H. tsingtouensis* from Eastern Siberia);
 Blüthgen, 1934 (*H. hedini* and *H. senilis* from China);
 Yasumatsu & Narisada, 1935: 65; “*H. brachyceros*” = *H. minor* from China);
 Blüthgen, 1936 (*H. rubicundus* from Buryatia, and Mongolia);
 Hedicke, 1940 (*H. quadricinctus* and *H. rubicundus* from China);
 Yasumatsu, 1940: 92 (“*H. chaharensis*” = *H. quadricinctus* from China);
 Yasumatsu, 1946: 19 (“*H. chaharensis*” = *H. quadricinctus* from China);
 Hirashima, 1957 (not revised list of species recorded from Eastern Palaearctic Region);
 Ebmer, 1978a (*H. hedini*, *H. quadricinctus*, *H. rubicundus*, and *H. tsingtouensis* from China and Primorskii Territory of Russia);
 Ebmer, 1978c (*H. rubicundus* and *H. tsingtouensis* from North Korea);
 Ebmer, 1982 (“*H. turanicus*” = *H. stachii* and *H. senilis* from Mongolia);
 Pesenko, 1984c (*H. minor* from Mongolia and China);
 Pesenko, 1984d: (*H. brunnescens*, *H. hedini*, *H. minor*, *H. quadricinctus*, *H. rubicundus*, and *H. senilis* from Mongolia and China);
 Pesenko, 1985 (*H. compressus* and *H. tsingtouensis* from Eastern Palaearctic Region);
 Pesenko, 1986a (*H. maculatus* from Eastern Siberia);
 Hirashima, 1989 (*H. rubicundus* and *H. tsingtouensis* from Japan);
 Yamada et al., 1990 (*H. tsingtouensis* from Japan);
 Ebmer, 1996 (*H. hedini*, *H. rubicundus*, and *H. tsingtouensis* from Eastern Palaearctic Region);
 Pesenko & Wu, 1997 (*H. brunnescens*, *H. hedini*, *H. minor*, *H. quadricinctus*, *H. rubicundus*, *H. senilis*, and *H. tsingtouensis* from China);
 Proshchalykin, 2003 (*H. hedini* and *H. tsingtouensis* from Kuril Islands);
 Pesenko & Davydova, 2004 (*H. rubicundus* from Yakutia);
 Proshchalykin, 2004 (*H. hedini*, *H. rubicundus*, and *H. tsingtouensis* from the south part of the Russian Far East);
 Proshchalykin et al., 2004 (*H. hedini* and *H. tsingtouensis* from Sakhalin Island);
 Pesenko, 2005 (*H. brunnescens*, *H. hedini*, *H. quadricinctus*, and *H. tsingtouensis* from Eastern Siberia).

In the key to species below, the following abbreviations are used: S, metasomal sternum; T, metasomal tergum; e.g. T1 means tergum 1; S4, sternum 4, in metasomal (not abdominal or gastral) numeration. For description of the punctation, the

following “formula” is used: interval of (typical) puncture diameters in μm and intervals of (typical) interspaces width estimated in the number of average puncture diameters (in parentheses), *e.g.* 28–35 μm / (2–3).

In the annotated list below, species are provided with the sections “Published records” and “Material examined” including only the data from the Eastern Palaearctic Region. The words “Province” in names of administration districts in North Korea, “Province”, “Autonomous Region” and “Municipality” in names of administration districts in China, “Aimak” in names of administration districts in Mongolia (excepting “Central Aimak” and “Eastern Aimak”), “Island” for Sakhalin, Kuril (Iturup, Kunashir, Urup, etc.) and Japanese Islands are omitted.

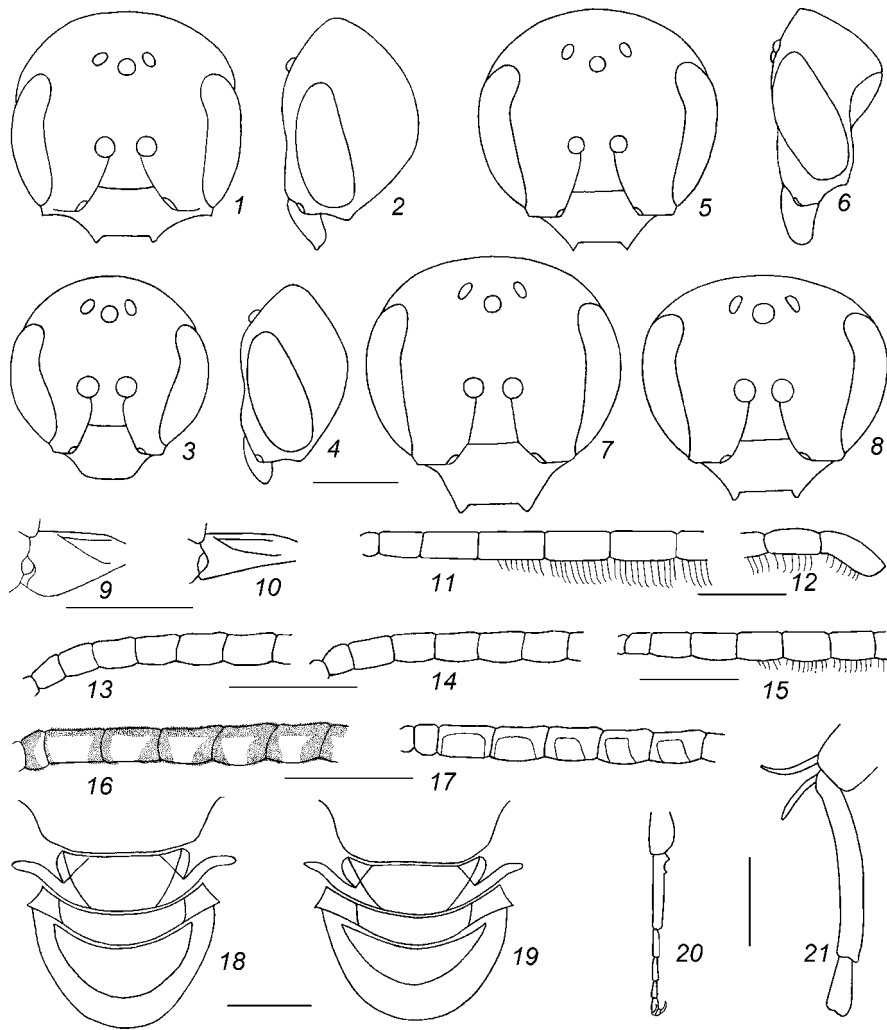
The most part (in the total, more than 3000 specimens) of the material examined (except for that from China, see below) is deposited at ZISP (explanation of abbreviation see below). Some bees have been provided for study from IBSV. The most part of the material examined from China (497 of 557 specimens in the total) is deposited at IZB and provided with geographical labels in Chinese. From these labels, only a province of collection (not a locality) was rewritten in Latin letters for publication (see Pesenko & Wu, 1997). Labels of 60 specimens of 12 species from China deposited at ZISP were published by me earlier (Pesenko, 1984d) in Russian.

The following abbreviations are used in the text for indication of museums, institutions and private collections as depositaries for types and other material examined:

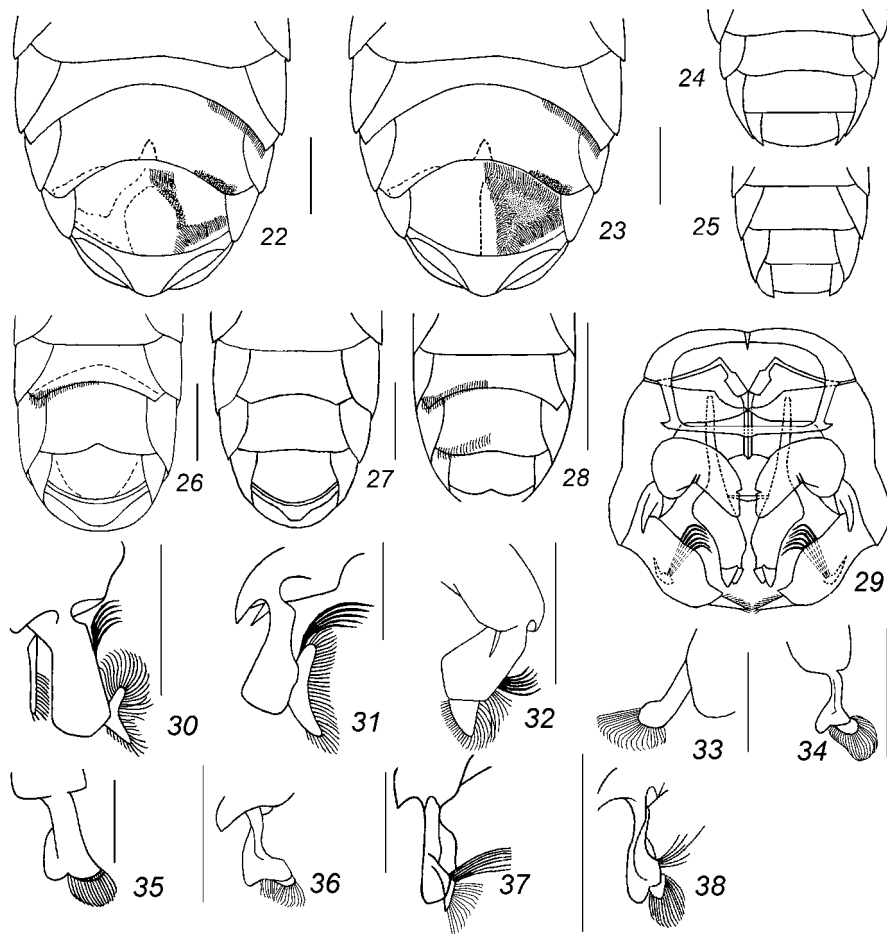
- ASF** – Academy of Natural Sciences, San Francisco, USA (curator W. Pulawski);
- BML** – British Museum of Natural History, London, Great Britain (curator G.R. Else);
- DEI** – Deutsches entomologisches Institut, Eberswalde (at present in Müncheberg), Germany (curator H.H. Dathe);
- EBM** – private collection of Andreas W. Ebmer, Linz, Austria;
- HMB** – Hungarian Natural History Museum, Budapest, Hungary (curator J. Papp);
- IBSV** – Institute of Biology and Soil Science, Russian Academy of Sciences, Vladivostok, Russia (curator A.S. Lelej);
- IZB** – Institute of Zoology, Academia Sinica, Beijing, China (curator Y. Wu);
- IZK** – Institute of Systematic and Experimental Zoology, Polish Academy of Sciences, Krakow, Poland (curator W. Celary);
- NMW** – Naturhistorisches Museum, Wien, Austria (curator M. Fischer);
- MNB** – Museum für Naturkunde an der Humboldt Universität zu Berlin, Germany (curator F. Koch);
- MNP** – Muséum National d’Histoire Naturelle, Paris, France (curator J. Casevitz-Weulersse);
- NRS** – Naturhistoriska Riksmuseet, Stockholm, Sweden (curator E. Erlandsson);
- OLML** – Oberösterreichs Landesmuseum, Linz, Austria (curator F. Gusenleitner);
- SCH** – Private collection of Maximilian Schwarz; Ansfelden by Linz, Austria;
- UZMC** – Universitetets Zoologiske Museum, Copenhagen, Denmark (curator B. Petersen);
- ZCK** – Zoological Collection, Kyoto University, Japan;
- ZISP** – Zoological Institute, Russian Academy of Sciences, St. Petersburg (curator Yu.A. Pesenko);
- ZMM** – Zoological Museum, Moscow University, Moscow, Russia (curator A.V. Antropov);
- ZMO** – Zoological Museum, Oxford University, Oxford, UK (curator Ch. O’Toole);
- ZSM** – Zoologische Staatssammlung, München, Germany (curator E. Diller).

A KEY TO THE EASTERN PALAEARCTIC SPECIES

- 1 ♂ ♀: very large, body length 14–18 mm; head nearly cubical. ♂: antennal flagellum flattened, with long eyelash-like fringe on lower side (Fig. 11); last flagellomere flattened and slightly curved, hockey-stick shaped (Fig. 12); hind basitarsus curved (Fig. 21); S5 strongly emarginate, S6 deeply depressed in the middle, with fur-like pubescence (Figs 22, 23); gonostylus double (similar in general structure to that of *H. rubicundus*; see Fig. 29, but with well developed lower gonostylus); upper gonostylus broad, with a clump of very coarse bristles on inner surface; lower gonostylus spoon-like (Fig. 33). ♀: mesoscutum coarsely (35–55 µm), sparsely and irregularly punctate, interspaces 1–4 diameters of punctures 2
- ♂ ♀: smaller, length less than 13 mm; head rounded and thinner (except for *H. maculatus*). ♂: flagellum not flattened, without eyelash-like fringe (except for *H. hedini*, in which flagellum provided with a fringe of short hairs; Fig. 15); last flagellomere of normal form; hind basitarsus straight; S5 straight or weakly emarginate, S6 flat or weakly depressed, relatively inconspicuously pubescent; gonostylus of variable structure. ♀: mesoscutum much denser and finer punctate 3
- 2 ♂ ♀: posterior hair bands of metasomal terga narrowed or interrupted in the middle, anterior bands or lateral spots absent. ♂: flagellum entirely black or dark fuscous on upper side; dense pubescence of S6 provided with fur-like pubescence only at sides of rounded median depression (Fig. 22); width of lower gonostylus in distal half 1.5 times as wide as that in proximal one 3. ***H. (Halictus) quadricinctus***
- ♂ ♀: posterior hair bands of terga usually not narrowed in the middle, T2 with anterior band or lateral spots. ♂: flagellum light yellow fuscous on upper side, except for 1 or 2 black last segments, first 5 segments usually with large fuscous spots; S6 pubescent nearly throughout (Fig. 23); lower gonostylus slighter widened in distal half 2. ***H. (Halictus) brunnescens***
- 3 ♂ ♀: head and mesosoma covered with dense white tomentose pubescence on most part of their surface (mesoscutum sometimes with ochre-yellow tomentum); propodeum short, its dorsal surface nearly as long as metanotum; metasomal terga with wide anterior and posterior bands consisting of dense appressed hairs of coarse structure; often T1 and T2 red; body length 8–11 mm. ♂: fore tarsus very slender, elongate and narrowed (Fig. 20); gonostylus simple (Fig. 34) 1. ***H. (Argalictus) senilis***
- ♂ ♀: head and mesosoma without or with poor tomentose pubescence; propodeum longer, its dorsal surface at least 1.5 times as long as metanotum; metasomal terga without or with anterior bands or lateral spots consisting of sparse hairs, their posterior bands consisting of appressed hairs of fine structure; all terga always black. ♂: fore tarsus usual; gonostylus of variable structure 4
- 4 ♂ ♀: smaller, body length 6–8 mm, occasionally (in some gynes) 9 mm; head thick; vertex strongly developed, its length (estimated as distance between posterior margin of lateral ocelli and posterior margin of vertex) 1.4–2.0 times in females



Figs 1–21. 1–4) *Halictus maculatus*; 5, 6, 9, 16) *H. compressus*; 7, 13, 18) *H. stachii*; 8, 14, 19) *H. rubicundus*; 10, 17) *H. tsingtouensis*; 11, 12, 21) *H. quadricinctus*; 15) *H. hedini*; 20) *H. senilis*. 1, 3, 5, 7, 8) head, frontal view; 2, 4, 6) head, lateral view; 9, 10) mandible, proximal part; 11, 13–17) 1st–6th flagellomeres 1–6; 12) 10–11th flagellomeres; 18, 19) posterior part of mesosoma, dorsal view; 20) fore tarsus; 21) hind basitarsus. 1, 2, 5, 7, 8, 18, 19 – ♀; 3, 4, 6, 9–17, 20, 21 – ♂. Scale bars = 1 mm



Figs 22–38. 22, 33) *Halictus quadricinctus*; 23) *H. brunnescens*; 24, 34) *H. senilis*; 25, 35) *H. maculatus*; 26, 29, 31) *H. rubicundus*; 27, 36) *H. minor*; 28, 37) *H. compressus*; 30) *H. stachii*; 32) *H. hedini*; 38) *H. tsingouensis*. 22–28) male S4–S6; 29) male genital capsule; 30–38) male gonostyli (33, lower gonostylus). Scale bars = 1 mm

(Figs 1, 2) and 1.15–1.25 times in males (Figs 3, 4) greater than distance between inner margins of lateral ocelli; posterior hair bands of all metasomal terga broadly interrupted in the middle; posterior vertical surface and posterior part of lateral surfaces of propodeum shiny, distinctly punctate with polished interspaces. ♂: S4 straight at posterior margin (Fig. 25); gonostylus simple (Fig. 35). ♀: head nearly square in frontal view (Fig. 1); genal area 1.4 (in smaller females) to 2.3 times (in bigger ones, Fig. 2) as wide as eye in lateral view to head; metasoma slender 10. *H. (Tythalictus) maculatus*

- ♂ ♀: larger, body length 9–13 mm; at least bands on T3 and T4 continuous; posterior vertical surface and lateral surfaces of propodeum dull, roughened or shagreened, without polished interspaces. ♂: S4 slightly or strongly emarginate; gonostylus of variable structure. ♀: genal area narrower, metasoma broader . . . 5
- 5 ♂ ♀: metapostnotum obscurely rugulose, silk-shiny. ♂: genal area flattened; S4 slightly emarginate (Fig. 27); gonostylus simple, without pencil of long hairs (Fig. 36) 6. ***H. (Platyhalictus) minor***
- ♂ ♀: metapostnotum coarsely rugose and shiny or rugulose and granulate, mat. ♂: genal area and gonostylus of other structure; S4 deeply emarginate (Figs 26, 28) 6
- 6 ♂ ♀: metapostnotum coarser rugose; metasomal terga coarser (puncture diameter on disc of T2, 12–20 µm) and sparser punctate. ♂: genal area deeply concave, with a carina along outer margin of depression (Fig. 6); flagellomeres convex on lower side, covered with dense short hairs forming distal and proximal bands divided by bare area about 1/2–1/3 length of segment (Figs 16, 17); 1st flagellomere 0.5–0.7 times as long as its diameter; metasoma nearly cylindrical; T6 and T7 with short and little conspicuous pubescence; gonostylus simple, with a tassel of long hairs in middle of dorsomesal margin (Figs 37, 38). ♀: head rounded in frontal view, about as high as wide (Fig. 5) 7
- ♂ ♀: metapostnotum finer rugulose; metasomal terga very finely and densely punctate. ♂: genal area convex, without carina; flagellomeres nearly cylindrical, covered with inconspicuous hair fringe (except for *H. hedinii*, in which flagellum provided with a fringe of short hairs); 1st flagellomere 1.0–1.2 times as long as its diameter (Figs 14, 15); metasoma flattened, with maximum width in last third of its length; T6 and T7 with dense pubescence, long laterally; gonostylus double, similar to that in the subgenus *Halictus* (see couplet 2), without tassel of long hairs in dorsomesal margin (Figs 29, 31, 32). ♀: relative height of head variable 8
- 7 ♂ ♀: mesoscutum and metasomal terga sparser punctate, with distinct shiny interspaces. ♂: mandibles broadened before their base (Fig. 9); flagellum paler, ochre-yellow to fuscous yellow on lower side; hair band on T3 continuous; dorsomedial hair tassel of gonostylus wide and dense, about 0.2 times as wide at base as long (Fig. 37) 4. ***H. (Monilapis) compressus***
- ♂ ♀: mesoscutum and metasomal terga denser punctate, shagreened on interspaces, mat. ♂: mandibles normal, not broadened before its base (Fig. 10); flagellum darker, usually dark fuscous on lower side; hair band on T3 interrupted; dorso-medial hair tassel of gonostylus twice narrower and sparser (Fig. 38) 5. ***H. (Monilapis) tsingtouensis***
- 8 ♂ ♀: pubescence of head and mesosoma whitish: white in male, grayish white in female; propodeum nearly as long (estimated along its dorsal surface) as scutellum (Fig. 18); body length 9.5–11.0 mm. ♂: T5 with a posterior hair band; lower gonostylus of male long, provided with a row of hairs in distal half (Fig. 30). ♀: head rounded in frontal view, about as high as wide (Fig. 7) 9. ***H. (Protohalictus) stachii***

- ♂ ♀: pubescence of head and mesosoma yellowish: yellowish white in male, yellowish fuscous in female; propodeum about 0.7 times as long as scutellum (Fig. 19). ♂: T5 without posterior band; lower gonostylus short, pointed, spine-like, hairless (Figs. 31, 32). ♀: head transversely elliptic in frontal view, distinctly wider than high (Fig. 8) 9
- 9 ♂ ♀: T1 at least twice finer punctate, punctures superficial and indistinct; body length 9.5–11.0 mm. ♂: pubescence of flagellum inconspicuous. ♀: T5 around longitudinal bar area with grayish fuscous or dark fuscous pubescence 8. *H. (Protohalictus) rubicundus*
- ♂ ♀: T1 coarsely punctate, punctures deep; body length 11.5–13.0 mm. ♂: flagellum provided with a fringe of short eyelash-like hairs 0.3–0.5 times as long as flagellomeres diameter. ♀: T5 around longitudinal bar area with rusty-brown pubescence. (*H. hedini*) 10
- 10 ♀: legs dark (black or dark fuscous) entirely or hind tibia and tarsus dark brownish orange. 7a. *H. (Protohalictus) hedini hedini*
- ♀: at least distal third of middle tibia, hind tibia and tarsus entirely brightly rusty yellow 7b. *H. (Protohalictus) hedini hebeiensis*

AN ANNOTATED LIST OF THE EASTERN PALAEARCTIC SPECIES

1. *Halictus (Argalictus) senilis* (Eversmann, 1852)

Hylaeus senilis Eversmann, 1852: 33 (key), 34 (key), 38. ♀ non ♂ (= *H. rubicundus*). Lectotype: ♀, Russia: Orenburg; designated by Pesenko (1984b: 26); ZISP.

Halictus fucosus Morawitz, 1876: 219 (key), 230. ♂. Holotype: ♂, Uzbekistan: «steppe Syrdarya – Toshkent»; ZMM. The lectotype designation by Warncke (1982: 148) is unnecessary. Synonymy by Blüthgen (1922: 47).

Halictus albarius Pérez, 1895: 51. ♀. Lectotype: ♀, Tunisia: Kerkena; designated by Ebmer (1972: 598); MNP. Synonymy by Blüthgen (1922: 47, 58).

Halictus bivinctus Vachal, 1902: 226. ♀. Holotype: ♀, Turkmenistan: Ashgabat; IZK; examined. Synonymy by Blüthgen (1922: 61).

Halictus aegypticola Strand, 1909: 21, ♀ non ♂.

TAXONOMY (selected references). Blüthgen, 1923a: 306; 1923b: 75 (key), 80 (key), 140; 1936: 273, Fig. 3; 1955: 10; Ebmer, 1972: 598; 1975b: 50, 55 (key), 59 (key), Figs. 9, 19.

PUBLISHED RECORDS. Morawitz (1880: 367; “*Halictus fulvipes*”): “North-west. Mong. Potanin” (no locality). Blüthgen (1934: 3): **C h i n a** (“S.W.-Mongolei, Söderbom leg. 15.vi” [Neimenggu; see Kerzhner, 1972: 100]; no locality. Ebmer (1982: 201): **M o n g o l i a**: Bayan-Hongor (oase Ehin-gol). Pesenko (1984d: 457): Mongolia and China (see “Material examined”). Pesenko & Wu (1997: 203): China (see “Material examined”).

MATERIAL EXAMINED (15♂, 14♀). **Mongolia**: Central Aimak (Bayan-barat, 130 km SSW Ulanbator). **China**: Gansu (“oase Sachzhou” [at present, Dunhuang]), Neimenggu (“Dyn-yuan-in”, 65 km W Inchuang, eastern Alashan Mts.; bank of Goitso River, 160 km S Dalan-Hub, northern Alashan Mts.).

DISTRIBUTION. Deserts and semi-deserts of Palaearctic Region. North Africa: from Canary Islands and Morocco as far in the east as Egypt; Europe: southern Spain and southeastern part of European Russia; Asia: Near East, Asia Minor, Transcaucasus, Afghanistan, Iraq, Iran, southern Kazakhstan, Middle Asia, northern Pakistan, central Mongolia, northwestern and northern China.

2. *Halictus (Halictus) brunnescens* (Eversmann, 1852)

Hylaeus brunnescens Eversmann, 1852: 34 (key), 36. ♀. Lectotype: ♀, Russia: Orenburg; designated by Pesenko (1984b: 19); ZISP.

Halictus quadricinctus sensu Morawitz, 1876: 217 (key), 219 (key), 232 (in part); non *Apis quadricincta* Fabricius, 1776.

Halictus quadricinctus var. *aegyptiacus* Friese, 1916: 29, 30. ♀ ♂. Syntypes: 4 ♀, 1 ♂; «Abyssinia»; MNB; examined. Synonymy by Pesenko (1984a: 346).

Halictus quadricinctus var. *maximus* Friese, 1916: 29, 30. ♀ ♂. Syntypes: 2 ♀, 1 ♂, Russia: «Sarepta» [Volgograd]; MNB. Synonymy by Pesenko (1984b: 23).

TAXONOMY. Smith, 1854: 423 (in *Halictus*); Blüthgen, 1924: 402, 486 (keys); 1933: 16; 1935: 360; 1955: 8 (*H. quadricinctus* var. *aegyptiacus*); Warncke, 1982: 154; Ebmer, 1988: 551.

PUBLISHED RECORDS. Pesenko (1984d: 456): China (see “Material examined”). Pesenko & Wu (1997: 202): China (see “Material examined”). Pesenko (2005: 321): Eastern Siberia (see “Material examined”).

MATERIAL EXAMINED (7 ♂, 42 ♀). **Russia:** Eastern Siberia: Buryatia (Kyakhta, Ust-kiran). **China:** Neimenggu (“Dyn-yuan-in”, 65 km W Inchuang, eastern Alashan Mts.), Ningxia (“Nin-sya-fu” [at present, Inchuang], western Ordos Gobi Desert), Qinghai (bank of Sinikhe River, 50 km E Sinin, southeastern Alashan Mts.).

DISTRIBUTION. Warm zones of western Palaearctic Region as far in the east as northern Pakistan, northern China and Buryatia. North Africa: Morocco, Tunisia, Egypt; southern Europe to Austria, Czech and Bashkiria in the north; Asia: Israel, Asia Minor, Transcaucasus, Afghanistan, Iran, Kazakhstan, Middle Asia, Pakistan, northwestern and northern China.

3. *Halictus (Halictus) quadricinctus* (Fabricius, 1776)

Apis quadricincta Fabricius, 1776: 247. [♂]. Lectotype: ♂, «Dänemark»; designated by Warncke (1973a: 24); UZMC.

Apis hortensis Geoffroy in Fourcroy, 1785: 446. [♂]. Syntype(s): Paris; lost. Synonymy by Kirby (1802: 51).

Halictus quadristrigatus Latreille, 1805: 364. ♀. Syntype(s): France: environs of Paris; lost. Synonymy by Morawitz (1866: 20).

Halictus ecaphosus Walckenaer, 1817: 58, Pl. 1, Fig. 1. ♀ ♂. Syntypes: sine loco [northern France]; lost. Synonymy by Walckenaer (1817: 58). [The name «*H. quadristrigatus*» was given in the synonymy of *H. ecaphosus*].

Halictus chaharensis Yasumatsu, 1940: 92. ♀. Holotype: ♀, China: Inner Mongolia: Shangtu; ZCK. Synonymy by Ebmer (1995: 610).

TAXONOMY (selected references). Friese, 1916: 25, 29; Blüthgen, 1923b: 68 (key), 81 (key), 137; Ebmer, 1969: 157 (key); 1978a: 186; 1978b: 12; 1988: 551; Pesenko et al., 2000: 149 (key), 151, Figs. 208, 210, 211.

PUBLISHED RECORDS. Morawitz (1890: 363): **C h i n a** : Gansu ("Mongolei: Tala-u-Ulju" [50 km N Juxuang]). Cockerell (1929: 587): **Russia**: Irkutsk Province ("Smolenschina" [Smolenskoe near Irkutsk], Kychtak). Hedicke (1940: 336): **China**: Heilongjiang (Chin-chou). Yasumatsu (1940: 92; *H. chaharensis*): **China**: Neimenggu (Shangtu). Yasumatsu (1946: 19; *H. chaharensis*): **China**: Beijing. Ebmer (1978a: 187): **China**: Heilongjiang (Harbin). Pesenko (1984d: 455): Mongolia and China (see "Material examined"). Pesenko & Wu (1997: 202): China (see "Material examined"). Pesenko (2005: 322): Eastern Siberia (see "Material examined").

MATERIAL EXAMINED (83♂, 127♀). **Russia**: Eastern Siberia: Krasnoyarsk Territory (Bunbuy, Krasnoyarsk, Maklakhovskoe, Novoselovo, Lake Shira), Buryatia (Kyakhta), Irkutsk Province (Burkhan Mt., Irkutsk, Khudyakovo, Melnikovo, Padun, Tashtyk, Troitskosavsk). **M o n g o l i a** : Bulgan (Avlzagi), Selemga (bank of Orkhon River, 50 km S Kyakhta), Hentei (bank of Onon River, 7 km S Old Binder), Eastern Aimak (7 km S Eren-tsav [Chulun-Khorot]; bank of Numregin River, 32 km SE Salkhit Mt.). **C h i n a** : Gansu, Qinghai, Shanxi, Hebei, Liaoning, Jilin, Heilongjiang, and Shandong (no locality).

DISTRIBUTION. A transpalaeartic species. Europe (except for Ireland and Great Britain); northern and moderate Asia as far in the east as eastern China: Israel, Asia Minor, northern Afghanistan, Iran, Transcaucasus, Kazakhstan, Uzbekistan, Tajikistan, Kyrgyzstan, south of Western Siberia (Orenburg, Omsk, and Tomsk provinces, Altai, south of Eastern Siberia (Buryatia, Krasnoyarsk Territory, and Irkutsk Province); northwestern, northern, northeastern, and eastern China; Mongolia. Records from Africa (e.g., from Morocco; Blüthgen, 1923b: 251; 1933: 59) belong to *H. brunnescens*.

4. *Halictus (Monilapis) compressus* (Walckenaer, 1802)

Apis flavipes Panzer, 1798: H. 56, Taf. 17; nec *Apis flavipes* Fueßlin, 1775 (nomen dubium in genus *Halictus* s. str.), nec *Apis flavipes* Fabricius, 1787 (= *Seladonia tumulorum*). ♂. Syntype(s): Germany: Nürnberg; lost. Neotype: ♂, Germany: Regensburg near Nürnberg; designated by Pesenko (1985: 94); ZISP.

Andrena compressa Walckenaer, 1802: 105; nom. n. pro *Apis flavipes* Panzer, 1798.

Melitta quadricincta sensu Kirby, 1802: 51; nec *Apis quadricincta* Fabricius, 1776 (*Halictus quadricinctus*).

Hylaeus tomentosus Herrich-Schäffer, 1840a: 141; 1840b: 279; nom. n. pro *Apis flavipes* Panzer, 1798.

?*Hylaeus tomentosus* sensu Eversmann, 1852: 34, 37. ♀, non ♂ (= *H. rubicundus*).

Hylaeus senex Förster, 1860: 139. ♂. Syntype(s): southern Germany; lost. Neotype: ♂, Germany: München; designated by Warncke (1982: 149); ZSM; examined. Synonymy by Pesenko (1985: 93).

Halictus eurygnathus Blüthgen, 1931: 210. ♀♂. Syntypes: 2 ♀, 1 ♂, England: London; BML. Also proposed as a new name for «*Halictus tomentosus*» auct., nec «*Hylaeus tomentosus* Eversmann, 1852. ♀, non ♂»; and for «*Melitta quadricincta*» sensu Kirby, 1802, nec *Apis quadricincta* Fabricius, 1777. Synonymy by Pesenko (1985: 78, 93).

Halictus eurygnathopsis Blüthgen, 1936: 293. ♂. Holotype: ♂, Russia: Sochi (Krasnodar Province); MNB; examined. Synonymy by Pesenko (1985: 78, 93).

Halictus veneticus Ebmer, 1969: 150 (key), 151 (key), 162, Figs. 4, 8; nec *Halictus veneticus* Móczár, 1967 (= *Halictus sajoï*). ♂ ♀. Holotype: ♂, Hungary: Simontornya; MNB; examined. Synonymy (= *Hylaeus senex eurygnathopsis*) by Warncke (1973b: 282).

DISTRIBUTION. A western Palaearctic, mostly steppe species (from Spain to Baikal) considered to be consisting of four subspecies mostly differing in width of bare area between hair bands on lower side of male flagellomeres. The nominotypical subspecies inhabits in Europe nearly throughout (except Ireland, Norway and Finland), from Spain in the west, as far in the east as Volga River, to Poland and Udmurtia in the north, also Georgia, Asia Minor (except for eastern Turkey), and Near East. The eastern part of the species range is occupying by *H. compressus transvolgensis* Pesenko, 1985 (see below). Two the rest subspecies are more local: *H. compressus lunatus* Warncke, 1975 is known from eastern Turkey and north-western Iran, *H. compressus gissaricus* Pesenko, 1985, from Tajikistan.

4a. *Halictus (Monilapis) compressus transvolgensis* Pesenko, 1985

Halictus (Monilapis) compressus transvolgensis Pesenko, 1985: 85 (key), 95, Figs. 6, 19, 20, 60, 61, 102, 155. ♂. Holotype: ♂, 100 km S Omsk; ZISP.

PUBLISHED RECORDS. Pesenko (1985: 95): Eastern Siberia (see “Material examined”).

MATERIAL EXAMINED (12 ♂, 11 ♀). **Russia:** Eastern Siberia: Krasnoyarsk Territory (bank of Bunbui River near Kansk, 160 km E Krasnoyarsk); Irkutsk Province (Irkutsk); Buryatia (Lake Gusinoe), Chita Province (Kadahkta, 65 km SE Chita).

DISTRIBUTION. Steppes and forest-steppes of Russia from Volga to Lake Baikal: Bashkiria, Perm, Ulyanovsk, south of Omsk Province, of Krasnoyarsk Territory, and of Irkutsk Province; northern, eastern and southeastern Kazakhstan; Kyrgyzstan; northwestern China.

5. *Halictus (Monilapis) tsingtouensis* Strand, 1910

Halictus tetrizonius var. *tsingtouensis* Strand, 1910: 181. ♀ ♂. Lectotype: ♂, China: “Tsingtou” [at present Qingdao, Shandong Province]; designated by Pesenko (1984b: 28); MNB.

Halictus tsingtauensis: Blüthgen, 1923b: 128, 132. Unjustified emendation of *Halictus tsingtouensis* Strand, 1910.

TAXONOMY. Blüthgen, 1923b: 128 (key), 132; 1936: 297; Ebmer, 1978a: 188; Pesenko, 1984a: Figs. 18, 27, 28, 41, 51; 1984b: 28; 1985: 93 (key), 101, Figs. 46, 47, 89, 90, 126, 141.

PUBLISHED RECORDS. Strand (1910: 181): **C h i n a** : Shandong (“Tsingtou” [at present, Qingdao]). Cockerell (1924: 583; “*H. tetrizonius*”; 1925: 4; “*H. tetrizonius*”): **Russia:** Primorskii Territory (Okeanskaya). Cockerell (1929: 587; “*H. tomentosus*”): **Russia:** Chita Province (Ust-balei); Irkutsk Province (“Smolenschina” [Smolenskoe near Irkutsk], “Archen” [Arshan], Kychtak). Ebmer (1978a: 188): **China:** Heilongjiang (Harbin, Tschen). Ebmer (1978c: 308): **North Korea:** Pyongyang (Za-

mo san). Ebmer (1996: 268): **Russia**: Primorskii Territory (40 km SW Ussuriisk); **Japan**: Hokkaido (Sapporo) and Honshu (Aomori, Gifu). Pesenko (1985: 101): Eastern Palaearctic region (see “Material examined”). Yamada et al. (1990: 37): **Japan**: Honshu (Zaimoku; Sai); Pesenko & Wu (1997: 205): China (see “Material examined”). Proshchalykin (2003: 6): **Russia**: Kuril Islands: Iturup (Lesozavodsk). Proshchalykin (2004: 6): south of Far East (no locality). Proshchalykin et al. (2004: 159): Sakhalin (Ozerskii, Starodubskoe). Pesenko (2005: 328): Eastern Siberia (see “Material examined”).

MATERIAL EXAMINED (54 ♂, 60 ♀). **Russia**: Eastern Siberia: Krasnoyarsk Territory (“Mazharka, Minusinsk District”), Irkutsk Province (Irkutsk), Chita Province (Kalga). Far East: Amur Province (Area between Malaya Pera and Bolshoi Ergel Rivers; Klimoutsy Village, 45 km W Svobodnyi; Simonovo Village, 75 km W Svobodnyi), Khabarovsk Territory (Khabarovsk), Primorskii Territory (Lazo Nature Reserve: Benevskoe locality, Preobrazhenie Bay, Sandogou locality, Sukhoi Klyuch [Dry Spring] locality; Ussuri Nature Reserve: Mountain Taiga Station; Novokachalinsk; Putilovka; Slavyanka; Spassk; Khasan). **China**: Beijing (40 km N Beijing), Shandong (Yan-tan [Chifu]), Hebei, Heilongjiang, Jiangsu, and Zhejiang (no locality). **Japan**: Hokkaido (Sapporo), Honshu (Aobayama Mt.).

DISTRIBUTION. A southeastern Palaearctic species: Altai, Krasnoyarsk Territory, Irkutsk, Chita and Amur Provinces, Khabarovsk and Primorskii Territories of Russia, Sakhalin, southern Kurils (Iturup); northeastern, eastern, and southeastern China; North Korea; northern Japan.

6. *Halictus (Platyhalictus) minor* Morawitz, 1876

Halictus minor Morawitz, 1876: 217 (key), 233. ♀. Lectotype: ♀, Uzbekistan: «Sangy-Dzhuman» [30 km SSE Samarkand]; designated by Pesenko, 1984b: 23; ZISP.

Halictus altaicus Pérez, 1903: 41 (in Journal, p. ccviii). ♀. Lectotype: ♀, Altai; designated by Ebmer (1972: 613); MNP. Synonymy by Ebmer (1980: 472).

Halictus jarkandensis Strand, 1909: 36. ♀. Syntypes: 2 ♀, China: Jarkand; MNB; examined. Synonymy by Blüthgen (1931: 211).

Halictus jarkandensis Michener, 1978: 534, lapsus calami for *Halictus jarkandensis* Strand, 1909.

TAXONOMY. Blüthgen, 1923b: 77 (key), 135 (*H. jarkandensis*); 1936: 295, Fig. 11 (male); Yasumatsu, Narisada, 1935: 65 (*H. brachyceros*); Ebmer, 1972: 613 (*H. altaicus*); 1975a: 167 (*H. altaicus*); 1980: 472; Pesenko, 1984a: Fig. 2; 1984b: 23; 1984c: 39 (key), 41, Figs. 1, 2, 27-29.

PUBLISHED RECORDS. Yasumatsu & Narisada (1935: 65; *H. brachyceros*; see Ebmer, 1978a: 188): **China**: Liaoning (“Dairen” [Dalian]). Pesenko (1984c: 41): China (see “Material examined”). Pesenko (1984d: 456): China; see “Material examined”). Pesenko & Wu (1997: 205): China (see “Material examined”).

MATERIAL EXAMINED (1 ♂, 2 ♀). **China**: Gansu (“Nanshan Mts.”), Neimenggu “Dyn-yuan-in”, 65 km W Inchuang, eastern Alashan Mts.), Ningxia (“Ninsya-fu” [at present, Inchuang], western Ordos Gobi Desert).

DISTRIBUTION. A common Central Asian species. Azerbaijan, Afghanistan, northeastern Iran, Kazakhstan (including its European part), Middle Asia, northwestern Pakistan, northern India, northwestern, northern and northeastern China, Altai.

7. *Halictus (Protohalictus) hedini* Blüthgen, 1934

DISTRIBUTION. An eastern Palaearctic species considered to be consisting of two subspecies. The most part of the distributional range of the species is occupied by the nominotypical subspecies (see below). Another subspecies, *H. hedini hebeiensis* Pesenko et Wu, 1997, is known only in the subtropical zone of eastern China (see below).

7a. *Halictus (Protohalictus) hedini hedini* Blüthgen, 1934

Halictus hedini Blüthgen, 1934: 5, Fig. 1, 2. ♀ ♂. Syntypes: 4 ♀, 3 ♂, China: «S. Kansu» [Gansu Province: Ngai-menhoutou, 80 km NE Tan-chang, 120 km ESE Minsiang; the type locality is determined according the collection dates and the itinerary of the expedition published by Sjöstedt & Hummel, 1933]; NRS, MNB; examined.

TAXONOMY. Pesenko, 1984d: 455, 461 (key), 466 (key), 471, Figs. 7, 8, 28, 44, 62, 63.

PUBLISHED RECORDS. Blüthgen (1934: 5): **China**: Gansu (Ngai-menhoutou, 80 km NE Tan-chang). Ebmer (1978a: 187): **China**: Liaoning (Erdaochajlibche); **Russia**: Primorskii Territory (Tigrovaya Pad'). Pesenko (1984d: 456, 471): Mongolia and China (see "Material examined"). Ebmer (1996: 268): **China**: Neimenggu (Yangklaping), Heilongjiang (Harbin). Pesenko & Wu (1997: 203): China (see "Material examined"). Proshchalykin (2003: 6): **Russia**: Kuril Islands: Iturup (Le-sozavodsk), Kunashir (Sernovodsk). Proshchalykin (2004: 6): south of Far East (no locality). Proshchalykin et al. (2004: 159): **Russia**: Sakhalin (Nevelsk; Shebunino). Pesenko (2005: 336): Eastern Siberia (see "Material examined").

MATERIAL EXAMINED (493 specimens). **Russia**: Eastern Siberia: Krasnoyarsk Territory (Ezagash on bank of Enisei River), Irkutsk Province (Irkutsk, Listvyanka, Pronino near Bodaibo), Buryatia (Dungai near Kudar-somon), Chita Province (Chita). Far East: Amur Province (Area between Malaya Pera and Bolshoi Ergel Rivers; Bomnak in upper reaches of Zeya River; Khingan Nature Reserve; Klimoutsy Village, 45 km W Svobodnyi; Kundur; Never; Semenovka; Shimansk; Simonovo Village, 75 km W Svobodnyi), Khabarovsk Territory (Ayan; Efimov; Gar-makhta; mouth of Gorin River; upper reaches of Ignityan River; Khekhtsir; Komsomolsk-on-Amur; Nelkan; Pivan), Primorskii Territory (Anisimovka; Barabash-Levada; Kedrovaya Pad Nature Reserve; Lazo Nature Reserve: Benevskoe locality, Kievka Village, Landueva Pad, Pashegou Bay, Perekatnoe locality, Preobrazhenie Bay, Sandogou locality, Sukhoi Klyuch [Dry Spring] locality, Syao-tsyngou Bay, Syaukhe Bay, Tachingouz locality; Khasan; Monakino near Suchan; Novokachalinsk; Partizansk; Peishula; Putilovka; Shkotovo; Sikhote-Alin Nature Reserve: Nechet locality; Slavyanka; Spassk; Ussuri Nature Reserve: Mountain Taiga Station; Ussuriisk; Vladivostok; Yakovlevka), Sakhalin (Aniva; Nevelsk; Shebunino; Tymovsk; Yuzhno-Sakhalinsk),

Kuril Islands: Iturup (Lesovodsk), Kunashir (Alekhino; Golovnin Volcano; Sernovodsk). **Mongolia**: Central Aimak (Sudzukte locality in Noen-Ula Mt., western Khentei). **China**: Gansu and Jilin (no locality).

DISTRIBUTION. Southern Siberia and Russian Far East from Altai to Sakhalin and southern Kurils (Iturup and Kunashir); eastern Kazakhstan, central Mongolia; northwestern, northern and northeastern China.

7b. *Halictus (Protohalictus) hedini hebeiensis* Pesenko et Wu, 1997

Halictus (Protohalictus) hedini hebeiensis Pesenko et Wu, 1997: 203 (in Chinese), 206 (in English). ♀ ♂. Holotype: ♀, China: Yangkiaping (Hebei); IZB.

PUBLISHED RECORDS. Pesenko & Wu (1997: 203): China (see "Material examined").

MATERIAL EXAMINED (5♂, 15♀). **China**: Hebei (Yangkiaping; Xiaowutaishan) and Beijing (Beijing; Shi Yong shan; Wang Shuyong).

DISTRIBUTION. China: Hebei and Beijing.

8. *Halictus (Protohalictus) rubicundus* (Christ, 1791)

Apis rubicunda Christ, 1791: 190, Tab. 16, Fig. 10. [♀]. Syntype(s): sine loco [Germany]; lost.

Halictus nidulans Walckenaer, 1817: 69. ♀ ♂. Syntypes: sine loco [France]; lost. Synonymy by Nylander (1848: 198).

Halictus lerouxi Lepeletier, 1841: 272. ♀. Syntypes: «Armerique septentrionale» [North America]; MNP.

Halictus quadrifasciatus Smith, 1870: 25. ♂. Syntype(s): ♂, England: Lundy Island; ?lost. Synonymy by Ebmer (1988: 551).

Halictus lerouxi var. *ruborum* Cockerell, 1898: 52. ♀. Syntype(s): USA: Seattle (Washington State); in New York. Synonymy (= *H. rubicundus*) by Sandhouse (1941: 29).

Halictus rubicundus var. *nesiotis* Perkins, 1922: 99; nec *Halictus nesiotis* Crawford, 1918. ♂. Holotype: ♂, England: Lundy Island; BML. Synonymy by Warncke (1973b: 281).

Halictus rubicundus var. *laticincta* Blüthgen, 1923b: 70 (key), 124 (key), 135. ♀ ♂. Lectotype: □, Spain: environs of Madrid; designated by Pesenko (1984b: 23); MNB.

Halictus rubicundus var. *mongolensis* Blüthgen, 1936: 302. ♀ Holotype: ♀, «N. Mongolei»; NMW; examined.

Halictus lupinelli Cockerell, 1939: 158. ♀. Holotype: ♀, USA: Garberville (California); ASF. Synonymy by Sandhouse (1941: 29).

Halictus (Prohalictus) frater Pesenko, 1984d: 463 (key), 469, Figs. 5, 6, 27, 43, 58, 59, 77-79. ♂. Holotype: ♂, Mongolia: 70 km SW Ulanbator; ZISP. Synonymy by Ebmer (1988: 552).

TAXONOMY (selected references). Blüthgen, 1923b, 70 (key), 124 (key), 135; 1924: 346, 402 (key), 486 (key); 1936: 303 (*H. rubicundus laticinctus*); Sandhouse, 1941: 28, Pl. II, Fig. 6; Ebmer, 1969: 148 (key), 151 (key), 158; 1974: 121; 1978a: 188, Figs. 1, 2; 1978c: 308; Pesenko, 1984d: 454, 462 (key), 463 (key, *H. rubicundus* f. *mongolensis*), 464 (key, *H. rubicundus* f. *typica*), 464 (key, *H. rubicundus* f. *laticinctus*), 466 (key), Figs. 1-4, 25, 26, 37-39, 41, 42, 54, 55-57; 2005: 337; Pesenko et al., 2000: 149 (key), 154, many figs.; 2002: 35 (key), 38 (key), many figs.

PUBLISHED RECORDS. Morawitz (1890: 363): **China**: Gansu (“Mongolei: Tala-u-Ulju” [50 km N Juxuang]), Ningxia (“Mongolei: Chodtatschai”). Cockerell (1929: 587): **Russia**: Chita Province (Ust-balei). Blüthgen (1936: 302): **Russia**: Buryatia (“Mongolei: Monda” [Mondy]). **Mongolia** (“Mongolei, Leder, 1892 leg.” [northern Mongolia; see Kerzhner, 1972: 86]; no locality). Hedicke (1940: 336): **China**: Heilongjiang (Chin-chou). Ebmer (1978a: 188, 200): **China**: Heilongjiang (Harbin); **Russia**: Primorskii Territory (Ternei). Ebmer (1978c: 308): **North Korea**: Ryang-gang (Zam-zi-yan). Pesenko (1984d: 467): Mongolia and China (see “Material examined”). Hirashima (1989): **Japan** (Hokkaido). Ebmer (1996: 268): **Russia**: Kamchatka (“Bolschoj Semljashchik”), Khabarovsk Territory (near Bikin), Primorskii Territory (Khasan; Novovarvarovka; Samarka; Ussuriisk; 40 km SW Ussuriisk; 40 km E Ussuriisk). Pesenko & Wu (1997: 202): China (see “Material examined”). Pesenko & Davydova (2004: 685): Yakutia (see “Material examined”). Proshchalykin (2004: 6): south of Far East (no locality).

MATERIAL EXAMINED (over 600 specimens). **Russia**: Eastern Siberia: Tuva (Erzin); Krasnoyarsk Territory (Boguchan; Bunbui; Krasnoyarsk; Yeniseisk), Irkutsk Province (Irkutsk; Kotelnikov lighthouse on northwestern shore of Lake Baikal; Melnikovo; mouth of Lower Tunguska River; Oek, Padun Village on bank of Upper Tunguska River; Pronino Village on bank of Vitim River; Usol’e), Buryatia (Balurino; Dureny Village on left bank of Chikoi River; bank of Kary River; Khaim; Khoronkoi Station; Kyakhta; Mondy; Nerchinsk; Peschanka; Ust-kiran), Chita Province (Chita), Yakutia (bank of Chona River near mouth of Delindya River; bank of Bolshoi Batobii River, tributary of Vilyui River; mouth of Buotama River; Khaptagai Village, 30 km SSE Yakutsk; Khomurgan-Arbym Village near mouth of Aldan River; Kochegarskaya, Olekminsk; Kysyl-Yuryuie Village near “Bulus” frazil; mouth of Labyiya River; Mikhailovka Village, 60 km N Amga; Novopokrovskoe on bank of Amga River; Pavlovskoe; Tokinskii Stanovik Ridge, 35 km higher of Tuksan River mouth; Tyungyulyu Village, 50 km ENE Yakutsk; Vilyuisk; Yakutsk; 75 km SSE Yakutsk; Zhatai Village, 20 km N Yakutsk; Zhemkon-2 Village). Far East: Kamchatka (mouth of Belaya River; Burlyashchii; “Geysers Valley” Nature Reserve; Klyuchi; Kozyrevsk; Milkovo; Miniannaya Mt.; Nogino; Paratunino; Pauzhetka; Ragikes; Sheromy; Uzon), Amur Province (Area between Malaya Pera and Bolshoi Ergel Rivers; Bomnak in upper reaches of Zeya River; Khingan Nature Reserve; Simonovo Village, 75 km W Svobodnyi), Khabarovsk Territory (Bogorodskoe; bank of Des River; bank of Dzhukatai River; bank of Ignityanya River; Khabarovsk; Komsomolsk-on-Amur; Nelkan), Primorskii Territory (Chernigovka; Lazo Nature Reserve: Benevskoe locality, Sandogou locality, Tachingouz bay; Novokachalinsk; Primosk), Sakhalin (Astokh bay near Piltun Village), Urup. **Mongolia**: Hubsugul (Toson-tsengel), Ara-Hangai (Bugat; Tevshrulekh), Selenga (Dulan-khan; bank of Sug-Nugur River, right tributary of Hara-Gol River), Central Aimak (Lun-Ula Mt.; Noen-Ula Mt., western Hentei Ridge; bank of Shoroitu-Gol River, tributary of Dzakhryn-Gol River; Songino; Ulanbator), Hentei (20 km E Bayan-obo; Old Bayan-adrag; Old Binder; Tsenkhermandal), Eastern Aimak (Bayan-dun; Lake Huh-Nur; Salhit Mt.). **China**: Gansu

(Kuang-gou-chen Mt.; 100 km NE Sinin, southeastern Nanshan Mts.), Heilongjiang (Harbin; Madiopu in slopes of Taipinling Mts.), Neimenggu, Ningxia, Jilin (no locality).

DISTRIBUTION. A Holarctic species, common in all sub-cold and moderate zones. In Palearctic Region occurring from the Atlantic to Pacific Oceans.

9. *Halictus (Protohalictus) stachii* Blüthgen, 1923

Halictus stachii Blüthgen, 1923a: 321. ♀. Lectotype: ♀, Uzbekistan: «Ferghana (Kara-Gary)»; designated by Pesenko (2005: 338); IZK.

TAXONOMY. Blüthgen, 1923a: 321; 1923b: 70 (key), 136; 1936: 311 (♂); Pesenko, 1984d: 463 (key), 465 (key), 478, Figs. 23, 24, 36, 53, 75, 76.

PUBLISHED RECORDS. Ebmer (1982: 201; *H. turanicus*): **Mongolia**: Central Aimak (Ulanbator); Kobdos (Bulgan-Gol).

DISTRIBUTION. A rare species, inhabiting high lands of Central Asia. Uzbekistan, Tajikistan, Kyrgyzstan, and central Mongolia.

10. *Halictus (Tythhalictus) maculatus* Smith, 1848

DISTRIBUTION. A common western Palearctic species distributed as far in the east as Krasnoyarsk Territory of Russia. The species is considered to be consisting of two subspecies. The nominotypical subspecies occupies the most part of the species distributional range (see below). Another subspecies, *H. maculatus priesneri* Ebmer, 1975, mostly differing from the first one in thinner head, Asia Minor (except for the north-west), southern Armenia, southwestern Azerbaijan, Iran, and northeastern Afghanistan.

10a. *Halictus (Tythhalictus) maculatus maculatus* Smith, 1848

Halictus maculatus Smith, 1848: 2172. ♀. Holotype: ♀, England: Hampshire; ZMO.

Halictus interruptus Lepeletier, 1841: 270. ♀ ♂; nec *Hylaeus interruptus* Panzer, 1798. Syntypes: Paris; lost. Synonymy by Smith (1869: 246).

TAXONOMY (selected references). Blüthgen, 1923b: 74 (key), 129 (key); 1924: 348, 403 (key), 485 (key); Ebmer, 1969: 175 (key), Fig. 3; 1975b: 41, 49 (key), Figs. 2, 6; Pesenko, 1986a: 621 (key), 625, Figs. 1-6, 23-26, 39-42, 73, 74. Pesenko et al., 2000: 148 (key), 161, Figs. 199-202, 219, 220.

PUBLISHED RECORDS. Pesenko (1986a: 626): Eastern Siberia (see “Material examined”).

MATERIAL EXAMINED (5♂, 8♀). **Russia**: Eastern Siberia: Krasnoyarsk Territory (Yeniseisk, Minusinsk).

DISTRIBUTION. Europe as far in the north as 60° N; moderate zones of Asia to northern Transcaucasus, northwestern Turkey, northern Iran (Elburs and Kopet Dagh Ridges), southern Turkmenistan (Kopet Dagh Ridge), and northwestern China (Xinjiang) in the south; to eastern Kazakhstan and Krasnoyarsk Territory of Russia in the east.

DISCUSSION: DISTRIBUTIONAL PATTERNS

The genus *Halictus* is most diverse on the territory of the Ancient Mediterranean Basin (recent Mediterranean basin and Fore and Middle Asia). On this reason, it is very poorly represented in the Eastern Palaearctic Region, in comparison, *e.g.*, with the genus *Lasioglossum* (Pesenko, 1986b, 1988) of a subequal number of Palaearctic species. Only 10 species of *Halictus*, *i.e.* 12.3% of its Palaearctic fauna) occur there (Table). Of them, one species is Holarctic in occurrence (*H. rubicundus*); one species, transpalaearctic (*H. quadricinctus*); five species are western Palaearctic, only penetrating into the Eastern Palaearctic Region from the west, as far in the east as the south of Krasnoyarsk Territory (*H. maculatus*), as Lake Baikal (*H. compressus*), or as Central Mongolia and/or northern China (*H. brunnescens*, *H. minor*, *H. senilis*, and *H. stachii*). Only two species, *H. hedini* and *H. tsingtouensis*, are endemic to the Eastern Palaearctic Region, more precisely, to the southeast of the Palaearctic Region.

T a b l e

Occurrence of *Halictus* species in Eastern Palaearctic Region

Species	Eastern Siberia	Russian Far East	Mon- golia	Northern China	Eastern China	Korean Peninsula	Japan
<i>H. brunnescens</i>	+	–	–	+	–	–	–
<i>H. compressus</i>	+	–	–	–	–	–	–
<i>H. hedini</i>	+	+	+	+	+	–	–
<i>H. maculatus</i>	+	–	–	–	–	–	–
<i>H. minor</i>	–	–	–	+	+	–	–
<i>H. quadricinctus</i>	+	–	+	+	+	–	–
<i>H. rubicundus</i>	+	+	+	+	+	+	+
<i>H. senilis</i>	–	–	+	+	–	–	–
<i>H. stachii</i>	–	–	+	–	–	–	–
<i>H. tsingtouensis</i>	+	+	–	–	+	+	+
Total	7	3	5	6	5	2	2

ACKNOWLEDGEMENTS

For loan of the type and comparative material I wish to thank the curators of museum collections and owners of personal collections listed in the introduction of the paper. Also I am very grateful to Prof. I.M. Kerzhner (ZISP) and Prof. A.S. Lelej (IBSV) for useful advices and help in establishing the current names of some localities in Mongolia, China, and Japan.

REFERENCES

- Blüthgen, P. 1922. Beiträge zur Synonymie der Bienengattung *Halictus* Latr. [I]. – Deutsche entomologische Zeitschrift 1922(1): 46-66.
 Blüthgen, P. 1923a. Beiträge zur Kenntnis der Bienengattung *Halictus* Latr. – Archiv für Naturgeschichte. Abteilung A, 89(5): 232-332.

- Blüthgen, P. 1923b. Beiträge zur Systematik der Bienengattung *Halictus* Latr. (Hym.). I. Die Binden-Halictus (Gruppe des *sexcinctus* F.). – *Konowia* 2(1-2): 65-81; (3-4): 123-142.
- Blüthgen, P. 1924. Contribución al conocimiento de las especies españolas de “*Halictus*” (Hymenoptera, Apidae). – *Memorias de la Real Sociedad Española de Historia Natural* 11(9): 332-544.
- Blüthgen, P. 1925. Beiträge zur Kenntnis der Bienengattung *Halictus* Latr. II. – *Archiv für Naturgeschichte. Abteilung A*, (1924), 90(10): 86-136.
- Blüthgen, P. 1931. Beiträge zur Synonymie der Bienengattung *Halictus* Latr. VII. (Hym. Apid.). – *Deutsche entomologische Zeitschrift* 1930(4): 209-215.
- Blüthgen, P. 1933. Ein Beitrag zur Kenntnis der Bienenfauna Ägyptens (Hymenoptera-Apidae-Halictidae-Halictinae). – *Bulletin de la Societe Royale Entomologique des Egypte* 17(1-3): 14-27.
- Blüthgen, P. 1934. Schwedisch-chinesische wissenschaftliche Expedition nach den nordwestlichen Provinzen Chinas unter Leitung von Dr. Sven Hedin und Prof. Sü Ping-chang: Insekten, gesammelt vom schwedischen Arzt der Expedition. Dr. David Hummel 1927-1930. 27. Hymenoptera. 5. *Halictus*- und *Sphecodes*-Arten (Hym.; Apidae; Halictini). – *Arkiv för Zoologi* 27A(13): 1-23.
- Blüthgen, P. 1935. *Halictus*, *Nomioides* und *Sphecodes*. – In: Popov, V.B. K faune pchelinnykh Tadjikistana [A contribution to the bee fauna of Tajikistan]. – *Trudy Tadjhikskoi Bazy AN SSSR* 5: 360-367.
- Blüthgen, P. 1936. Neue paläarktische Binden-*Halictus* (Hym. Apidae). – *Mitteilungen aus den zoologischen Museum in Berlin* 21(2): 270-313.
- Blüthgen, P. 1955. The Halictinae (Hymen., Apoidea) of Israel. I. Genus *Halictus* (subgenera *Halictus* s. str. and *Thrincohalictus*). – *Bulletin of the Research Council of Israel. Ser. B*, 5(1): 5-23.
- Christ, J.L. 1791. *Naturgeschichte Classification und Nomenclatur der Insecten vom Bienen, Wespen, und Ameisengeschlecht; als der fünften Klasse fünften Ordnung des Linneischen Natursystems von den Insecten: Hymenoptera.* Frankfurt a. M.: Hermann, 535 pp., 60 col. pls.
- Cockerell, T.D.A. 1898. New and little-known bees. – *Canadian Entomologist* 30(3): 50-53.
- Cockerell, T.D.A. 1924. Descriptions and records of bees. CIII. – *Annals and Magazine of Natural History. Ser. 9*, 14(84): 577-585.
- Cockerell, T.D.A. 1925. Some halictine bees from the Maritime Province of Siberia. – *Proceedings U.S. National Museum* 68(2607): 1-12.
- Cockerell, T.D.A. 1929. Descriptions and records of bees. CXX. – *Annals and Magazine of Natural History. Ser. 10*, 4(24): 584-594.
- Ebmer, A.W. 1969. Die Bienen des Genus *Halictus* Latr. s. 1. im Großraum von Linz (Hymenoptera, Apidae). Systematik, Biogeographie, Ökologie und Biologie mit Berücksichtigung aller bisher aus Mitteleuropa bekannten Arten. Teil I. – *Naturkundliches Jahrbuch der Stadt Linz* 1969: 133-183.
- Ebmer, A.W. 1972. Revision der von Brullé, Lucas und Pérez beschriebenen westpaläarktischen *Halictus*-Arten (Halictidae, Halictinae, Apoidea), sowie Festlegung des Lectotypus von *Lasioglossum (Evylaeus) angustifrons* (Vachal). – *Polskie Pismo Entomologiczne* 42(3): 589-636.
- Ebmer, A.W. 1974. Beiträge zur Kenntnis der Fauna Afghanistans. *Halictus* Latr. et *Lasioglossum* Curt., Halictidae, Apoidea, Hymenoptera. – *Cas. Morav. Mus.*, 59: 183-210.
- Ebmer, A.W. 1974c. Von Linné bis Fabricius beschriebene westpaläarktische Arten der Genera *Halictus* und *Lasioglossum* (Halictidae, Apoidea). – *Nachrichtenblatt der bayerischen Entomologen* 23(6): 111-127.

- Ebmer, A.W. 1975a. Neue westpaläarktische Halictidae (Halictinae, Apoidea), Teil II. - Die Gruppe des *Halictus (Vestitohalictus) mucoreus* (Ev.). – Mitteilungen aus den zoologischen Museum in Berlin 51(2): 161-177.
- Ebmer, A.W. 1975b. Neue westpaläarktische Halictidae. (Halictinae, Apoidea). Teil III. – Linzer biologische Beiträge 7(1): 41-118.
- Ebmer, A.W. 1978a. Die Halictidae der Mandschurei (Apoidea, Hymenoptera). – Bonner zoologische Beiträge 29(1-3): 183-221.
- Ebmer, A.W. 1978b. *Halictus*, *Lasioglossum*, *Rophites* und *Systropha* aus dem Iran (Halictidae, Apoidea) sowie neue Arten aus der Paläarktis. – Linzer biologische Beiträge 10(1): 1-109.
- Ebmer, A.W. 1978c. Die Bienen der Gattungen *Halictus* Latr., *Lasioglossum* Curt. und *Dufourea* Lep. (Hymenoptera, Halictidae) aus Korea. – Annales Historico Naturales Musei Nationalis Hungarici 70: 307-319.
- Ebmer, A.W. 1980. Asiatische Halictidae (Apoidea, Hymenoptera). – Linzer biologische Beiträge 12(2): 469-506.
- Ebmer, A.W. 1982. Zur Bienenfauna der Mongolei. Die Arten der Gattungen *Halictus* Latr. und *Lasioglossum* Curt. (Hymenoptera: Halictidae). Ergebnisse der Mongolisch-Deutschen Biologischen Expeditionen seit 1962, Nr. 108. – Mitteilungen aus den zoologischen Museum in Berlin 58(2): 199-227.
- Ebmer, A.W. 1988. Kritische Liste der nicht-parasitischen Halictidae Österreichs mit Berücksichtigung aller mitteleuropäischen Arten (Insecta: Hymenoptera: Apoidea: Halictidae). – Linzer biologische Beiträge 20(2): 527-711.
- Ebmer A.W. 1995. Asiatische Halictidae, 3. Die Artengruppe der *Lasioglossum carinate-Evylaeus* (Insecta: Hymenoptera: Apoidea: Halictidae: Halictinae). – Linzer biologische Beiträge 27(2): 525-652.
- Ebmer, A.W. 1996. Asiatische Halictidae, 5. Daten zur Aculeaten-Fauna der Ussuri-Region unter Berücksichtigung der angrenzenden Gebiete (Insecta: Hymenoptera: Apoidea: Halictidae: Halictinae). – Linzer biologische Beiträge 28(1): 261-304.
- Eversmann, E. 1852. Fauna hymenopterologica volgo-uralensis. (Continuatio). – Bull. Soc. Natur. Moscou 25(3): 3-137.
- Fabricius, J.C. 1776. Genera insectorum, eorumque characteres naturales, secundum numerum, figuram, situm et proportionem, omnium partium oris adjecta mantissa specierum nuper detectarum. Chilonii: M. F. Bartsch, 14 + 310 pp.
- Förster, A. 1860. Eine [Zweite] Centurie neuer Hymenopteren. – Verhandlungen des naturhistorischer Vereins der preußischen Rheinlande und Westfallens, (N. F.), 7: 93-153.
- Friese, H. 1916. Die Formen des *Halictus quadricinctus* F., sowie einige neue *Halictus* Arten der paläarktischen Region (Hym.). – Deutsche entomologische Zeitschrift 1916(1): 25-34.
- Geoffroy, M. 1785. In: Fourcroy, A.F. (ed.). Entomologia parisiensis. Sive catalogus insectorum quae in agro parisiensi reperiuntur. T. 2. Paris, pp. 233-544.
- Hedicke, H. 1940. Ueber paläarktische Apiden (Hym.). II. – Sitzungsberichte der Gesellschaft naturforschender Freund zu Berlin 1939(3): 335-350.
- Herrich-Schäffer, G. 1840a. Nomenclator entomologicus. Verzeichniss der europäischen Insekten. 2. Heft. Coleoptera, Orthoptera, Dermaptera und Hymenoptera. Regensburg: Pustet, viii + 40 + 244 pp.
- Herrich-Schäffer, G. 1840b. Fauna ratisbonensis oder Uebersicht der in der Gegend von Regensburg einheimischen Thiere. II. Animalia articulata. Classis I. Insecta. – In: Förn-horn, A.E. (ed.). Naturhistorische Topographie von Regensburg, Bd 3. Regensburg: G.J. Manz, pp. 45-386.

- Hirashima, Y. 1957. A tentative catalogue of the genus *Halictus* Latreille of Japan, and her adjacent territories (Hymenoptera, Halictidae). – Science Bulletin of the Faculty of Agriculture, Kyushu University 16(1): 1-30.
- Hirashima, Y. (Supervisor). 1989. A check list of Japanese insects. Fukuoka: Entomological Laboratory of the Faculty of Agriculture, Kyushu University, xi + 1767 pp.
- Kerzhner, I.M. 1972. K istorii izucheniya entomofauny Mongol'skoi Narodnoi Respubliki [Historical survey of studies of the insect fauna of the Mongolian People's Republic]. – In: Kerzhner, I.M. (ed.). Insects of Mongolia. No. 1. Leningrad: Nauka, pp. 57-112.
- Kirby, W. 1802. Monographia Apum Angliae. Vol. 1. Ipswich: J. Raw, xxii + 258 pp.
- Latreille, P.A. 1805. Histoire naturelle, générale et particulière, des crustacés et des insectes. T. 13. Paris: F. Dufart, 432 pp., pls. 98-103.
- Lepeletier, A. de Saint-Fargeau. 1841. Histoire naturelle des insectes. Hyménoptères. Tome 2. Paris: Libraire Encycl. de Roret, 680 pp.
- Michener, C.D. 1978. The classification of halictine bees: tribes and Old World nonparasitic genera with strong venation. – The University of Kansas, Science Bulletin 51(16): 501-538.
- Morawitz, F. 1866. Bemerkungen über einige vom Prof. Eversmann beschriebene Andrenidae, nebst Zusätzen. – Horae Societatis Entomologicae Rossicae 4(1): 3-28.
- Morawitz, F. 1876. Pchely (Mellifera). II. Andrenidae / Puteshestvie v Turkestan ... A.P. Fedchenko [Bees (Mellifera) / Travel to Turkestan by ... A.P. Fedchenko. No. 13, t. 2. Zoological Researches. Part 5, book 2]. – Izvestia Imeratorskogo Obshchestva Lyubitelei Estestvoznania, Etnographii i Antropologii 21(3): 161-304. (In Russian).
- Morawitz, F. 1880. Ein Beitrag zur Bienen-Fauna Mittel-Asiens. – Bulletin de Académie Impériale des Sciences de St.-Petersbourg 26: 337-389.
- Morawitz, F. 1890. Insecta a cl. G. N. Potanin in China et in Mongolia novissime lecta. XIV. Hymenoptera aculeata II, III. Apidae. – Horae Societatis Entomologicae Rossicae 24(3-4): 349-385.
- Nylander, W. 1848. Adnotationes in expositionem monographicam apum borealium. – Notiser ur Sällskapet pro Fauna et Flora Fennica Förhandlingar 1: 165-283.
- Panzer, G.W.F. 1798. Kritische Revision der Insektenfauna Deutschlands nach dem System bearbeitet. Faunae insectorum germaniae, Heft 5: Tafeln 49-60. Nürnberg: Felssecker.
- Pérez, J. 1895. Espèces nouvelles de mellifères de Barbarie (Diagnoses préliminaires). Bordeaux: Gounouihou. 64 pp.
- Pérez, J. 1903. Espèces nouvelles de mellifères (palaearctiques). – Procès-Verbaux des Séances de la Société Linnéenne de Bordeaux 58: ccviii-ccxxxvi.
- Perkins, R.C.L. 1922. The British species of *Halictus* and *Sphecodes*. – Entomologist's Monthly Magazine. Ser. 3, 8: 46-52, 94-101, 167-174.
- Pesenko, Yu.A. 1984a. Podrodovaya klassifikatsiya pchel roda *Halictus* Latreille sensu stricto (Hymenoptera, Halictidae) [A subgeneric classification of bees of the genus *Halictus* Latreille sensu stricto (Hymenoptera, Halictidae)]. – Entomologicheskoe Obozrenie 63(3): 340-357. (In Russian; English translation: Entomological Review 1985, 63(3): 1-20).
- Pesenko, Yu.A. 1984b. Sinonimicheskii annotirovannyi katalog nazvanii vidovoi gruppy pchel roda *Halictus* Latreille s. str. (Hymenoptera, Halictidae) mirovoi fauny [A synonymic annotated catalogue of species-group names of the bees of the genus *Halictus* Latreille s. str. (Hymenoptera, Halictidae) in the World fauna]. – Trudy Zoologicheskogo Instituta AN SSSR 128: 16-32. (In Russian).

- Pesenko, Yu.A. 1984c. Sistematika pchel roda *Halictus* Latreille (Hymenoptera, Halictidae) s opisaniyem 7-go i 8-go metasomal'nykh sternumov santsov: podrod *Platyhalictus* [The taxonomy of bees of the genus *Halictus* Latreille (Hymenoptera, Halictidae) with description of 7th and 8th metasomal sterna of males: subgenus *Platyhalictus*]. – Trudy Zoologicheskogo Instituta AN SSSR 128: 33-48. (In Russian).
- Pesenko, Yu.A. 1984d. Pchely hoda *Halictus* Latreille sensu stricto (Hymenoptera, Halictidae) Mongolii i severo-zapadnogo Kitaya, s obzorom publikatsii po Halictini etogo rayona i reviziei podroda *Prohalictus* v ob"eme mirovoi fauny [The bees of the genus *Halictus* Latreille sensu stricto (Hymenoptera, Halictidae) of Mongolia and northwestern China, with a review of publications on the Halictini of this region and with a revision of the subgenus *Prohalictus* of the World fauna]. – In: Korotyaev, B.A. (ed.). [Insects of Mongolia] 9: 446-481. Leningrad: Nauka. (In Russian).
- Pesenko, Yu.A. 1985. Sistematika pchel roda *Halictus* Latreille (Hymenoptera, Halictidae) s opisaniyem 7-go i 8-go metasomal'nykh sternumov santsov: podrod *Monilapis* Cockerell [The taxonomy of bees of the genus *Halictus* Latreille (Hymenoptera, Halictidae) with description of 7th and 8th metasomal sterna of males: subgenus *Monilapis* Cockerell]. – Trudy Zoologicheskogo Instituta AN SSSR 132: 77-105. (In Russian).
- Pesenko, Yu.A. 1986a. Sistematika pchel roda *Halictus* Latreille (Hymenoptera, Halictidae) s opisaniyem 7-go i 8-go metasomal'nykh sternumov santsov: podrod *Tytthalictus* Pesenko [The taxonomy of bees of the genus *Halictus* Latreille (Hymenoptera, Halictidae) with description of 7th and 8th metasomal sterna of males: subgenus *Tytthalictus*]. – Entomologicheskoe Obozrenie 65(3): 618-632. (In Russian; English translation: Entomological Review 1987, 66(2): 114-127).
- Pesenko, Yu.A. 1986b. Annotirovannaya opredelitel'naya tablitsa palearkticheskikh vidov roda *Lasioglossum* sensu stricto (Hymenoptera, Halictidae) po samkam, s opisaniyem novykh podrodov i vidov [An annotated key to the Palearctic species of bees of the genus *Lasioglossum* sensu stricto (Hymenoptera, Halictidae) for females, with descriptions of new subgenera and species]. – Trudy Zoologicheskogo Instituta AN SSSR 159: 113-151. (In Russian).
- Pesenko, Yu.A. 1988. Sravnitel'nyi analiz rasprostraneniya pchel iz rodov *Halictus* Latreille s. str. i *Lasioglossum* Curtis s. str. (Hymenoptera, Halictidae) v Palearktike [A comparative analysis of the distribution of the bee genera *Halictus* Latreille s. str. and *Lasioglossum* CURTIS s. str. (Hymenoptera, Halictidae) in the Palearctic Region]. – In: Zlobin, V.V. (ed.): The connections between entomofaunas of North Europe and Siberia. Leningrad: Zoological Institute of the USSR Academy of Sciences, pp. 126-141. [In Russian].
- Pesenko, Yu.A. 2000. Phylogeny and classification of the family Halictidae revised (Hymenoptera: Apoidea). – Journal of the Kansas Entomological Society (1999), 72(1): 104-123.
- Pesenko, Yu.A. 2004. The phylogeny and classification of the tribe Halictini, with special reference to the *Halictus* genus-group (Hymenoptera: Halictidae). – Zoosystematica Rossica 13(1): 83-113.
- Pesenko, Yu.A. 2005. New data on the taxonomy and distribution of bees of the genus *Halictus* Latreille (Hymenoptera: Halictidae). – Entomofauna 26(18): 313-348.
- Pesenko, Yu.A., Banaszak, J., Radchenko, V.G. & Cierznik, T. 2000. Bees of the family Halictidae (excluding *Sphcodes*) of Poland: taxonomy, ecology, bionomics. Bydgoszcz: Pedagogical University, ix + 348 pp.

- Pesenko, Yu.A. & Davydova, N.G. 2004. Fauna pchel (Hymenoptera, Apoidea) Yakutii. 2 [Bee fauna (Hymenoptera, Apoidea) of Yakutia. 2]. – Entomologicheskoe Obozrenie 83(3): 684-703. [In Russian].
- Pesenko, Yu.A. & Wu, Y. 1997. Chinese bees of the genus *Halictus* s. str. with descriptions of a new species and a new subspecies (Hymenoptera: Halictidae). – Acta Entomologica Sinica 40(2): 202-206. (In Chinese).
- Proshchalykin, M.Yu. 2003. The bees (Hymenoptera, Apoidea) of the Kuril Islands. – Far Eastern Entomologist 132: 1-21.
- Proshchalykin, M.Yu. 2004. A check list of the bees (Hymenoptera, Apoidea) of the southern part of the Russian Far East. – Far Eastern Entomologist 143: 1-17.
- Proshchalykin, M.Yu., Lelej, A.S., & Kupyanskaya, A.N. 2004. Fauna pchel (Hymenoptera, Apoidea) ostrova Sakhalin [The bee fauna (Hymenoptera, Apoidea) of Sakhalin Island]. – In: Storozhenko, S.Yu. (ed.). [The flora and fauna of Sakhalin Island. Proceedings of the International Project. Part 1]. Vladivostok: Dalnauka, pp. 154-192. (In Russian).
- Sandhouse, G.A. 1941. The American bees of the subgenus *Halictus*. – Entomologica Americana. New Series, 21 (1): 23-39.
- Schulz, W.A. 1906. Spolia hymenopterologica. Paderborn: Junfermann, iii + 355 pp.
- Sjöstedt, Y. & Hummel, D. 1933. Schwedisch-chinesische wissenschaftliche Expedition nach den nordwestlichen Provinzen Chinas, unter Leitung von Dr. Sven Hedin und Prof. Sü Ping-chang. Insekten gesammelt von schwedischen Arzt der Expedition Dr. Hummel 1927-1930. Einleitung. – Arkiv för Zoologi 25A(H. 1, Nr. 3): 1-16.
- Smith, F. 1848. Descriptions of the British species of bees belonging to the genus *Halictus* of Latreille. – Zoologist 6: 2037-2044, 2100-2108, 2167-2175.
- Smith, F. 1853. Catalogue of hymenopterous insects in the collection of the British Museum. Part I. Andrenidae and Apidae. London: British Museum of Natural History. 195 pp., pls. I-VI.
- Smith, F. 1854. Catalogue of hymenopterous insects in the collection of the British Museum. Part II. Apidae. London: British Museum of Natural History, pp. 199-465, pls. VII-XII.
- Smith, F. 1869. A revision of the characters and synonymes of British bees. (Continued from vol. iv, p. 9). – Zoologist 4(64): 241-249.
- Smith, F. 1870. Notes on Hymenoptera. – Entomologist's Annual 1870: 19-30.
- Strand, E. 1909. Die paläarktischen *Halictus*-Arten des kgl. zoolog. Museums zu Berlin; z. T. nach Bestimmungen von J.D. Alfken. – Archiv für Naturgeschichte. Abteilung A, 75(1): 1-62.
- Strand, E. 1910. Neue süd- und ostasiatische *Halictus*-Arten im kgl. zoologischen Museum zu Berlin. (Hym., Apidae). – Berliner entomologische Zeitschrift (1909), 54(3-4): 179-211.
- Strand, E. 1921. Apidologisches, insbesondere über paläarktische *Halictus*-Arten, auf Grund von Material des Deutschen entomologischen Museums. – Archiv für Naturgeschichte. Abteilung A, 87(3): 305-322.
- Vachal, J. 1902. Halictus nouveaux ou litigieux de la collection Radoszkovski (Hymenoptera, Apidae). – Russkoe Entomologicheskoe Obozrenie 2(4): 225-231.
- Walckenaer, C.A. 1802. Fauna Parisienne. Ou histoire abrégée des insectes des environs de Paris. T. 2. Paris: Dentu, xxii + 438 pp.
- Walckenaer, C.A. 1817. Mémoires pour servir à l'histoire naturelle des abeilles solitaires qui composent le genre Halicte. Paris: Didot, iv + 95 pp.
- Warncke, K. 1973a. Die unter dem Gattungsnamen Apis beschriebenen Bienen der Gattung *Halictus* (Apoidea, Hymenoptera) und Fixierung von Lectotypen weiterer von Fabricius beschriebener *Halictus*-Arten. – Nachrichtenblatt der bayerischen Entomologen 22(2): 23-26.

- Warncke, K. 1973b. Zur Systematik und Synonymie der mitteleuropäischen Furchenbienen *Halictus* Latreille (Hymenoptera, Apoidea, Halictidae). – Bulletin de la Société Royale des Sciences de Liège 42(7-8): 277-295.
- Warncke, K. 1982. Beitrag zur Bienenfauna des Iran, 14. Die Gattung *Halictus* Latr., mit Bemerkungen über bekannte und neue *Halictus*-Arten in der Westpaläarktis und Zentralasien. – Bollettino del Museo Civico di Storia Naturale di Venezia (1981), 32: 67-166.
- Yamada, M., Munakata, M. & Sakagami, S.F. 1990. Non-parasitic halictid bees in Shimokita and Nambu Districts (Aomori Prefecture), northernmost Honshu. – Journal of the Aomori-ken Biological Society 27: 35-40. (In Japanese).
- Yasumatsu, K. 1940. Contributions to the hymenopterous fauna of Inner Mongolia and North China. – Transactions from the Sapporo Natural History Society 16(2): 90-95.
- Yasumatsu, K. 1946. Hymenoptera Aculeata collected by Mr. K. Tsuneki in North China and Inner Mongolia. III. Apoidea. – Mushi 17(5): 19-26.
- Yasumatsu, K. & Narisada, G. 1935. Miscellaneous notes on the hymenopterous fauna of South Manchuria. (First Report). – Mushi 8(2): 64-82.

© **Far Eastern entomologist (Far East. entomol.)** Journal published since October 1994.
Editor-in-Chief: S.Yu. Storozhenko
Editorial Board: A.S. Lelej, V.S. Sidorenko, N.V. Kurzenko
Address: Institute of Biology and Soil Science, Far East Branch of Russian Academy of Sciences, 690022, Vladivostok-22, Russia.
E-mail: entomol@ibss.dvo.ru FAX: (4232) 310 193