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New data on the taxonomy and distribution of the Palaearctic halictids: genus *Halictus* LATREILLE

(Hymenoptera: Halictidae)

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Abstract

The paper presents some new results of the study of the bee genus *Halictus*. A new species, *H.* (*Protohalictus*) *nuristanicus* **sp.n.**, and also the hitherto unknown male of *H. submodernus* BLÜTHGEN, male of *H. takuiricus* BLÜTHGEN, and female of *H. beytueschebapensis* WARNCKE are described. The synonymy *H. determinandus* DALLA TORRE, 1896 = *H. ebmeri* PESENKO, 1984, **syn.n.**, is ascertained. The lectotypes of *Lucasius cochleariturarsis* DOURS, *Halictus duplocinctus* VACHAL, and *H. stachii* BLÜTHGEN are designated. A taxonomic rank of *H. senex beytueschebapensis* WARNCKE is raised to specific. Improved diagnoses of *H. fimbriatus* SMITH, *H. funerarius* MORAWITZ, *H. turanicus* MORAWITZ, and *H. xanthoprymnus* WARNCKE are given. The variability based on new data in *H. constrictus* SMITH, *H. duplocinctus* VACHAL, *H. georgicus* BLÜTHGEN, *H. hedini* BLÜTHGEN, *H. modernus* MORAWITZ, *H. palustris* MORAWITZ, *H. patellatus* MORAWITZ, *H. rubicundus* (CHRIST), and *H. sexcinctus* (FABRICIUS) is characterized. Also new data on the distribution of 28 species are given (countries, from which a species recorded for the first time, marked by asterisks in the text).

Резюме

ПЕСЕНКО Ю.А. «Новые данные по систематике и распространению палеарктических галиктид: род *Halictus* LATREILLE (Hymenoptera: Halictidae)». В статье представлены новые результаты исследования пчел рода *Halictus*. Описаны новый вид, *H.* (*Protohalictus*) *nuristanicus* **sp.n.**, а также ранее неизвестные самец *H. submodernus* BLÜTHGEN, самец *H. takuiricus* BLÜTHGEN и самка *H. beytueschebapensis* WARNCKE. Установлена синонимия: *H. determinandus* DALLA TORRE, 1896 = *H. ebmeri* PESENKO, 1984, **syn.n**. Обозначены лектотипы *Lucasius cochleariatarsis* DOURS, *Halictus duplocinctus* VACHAL и *H. stachii* BLÜTHGEN. *H. senex beytueschebapensis* WARNCKE установлен в качестве самостоятельного вида. Уточнены диагнозы *H. fimbriatus* SMITH, *H. funerarius* MORAWITZ, *H. turanicus* MORAWITZ и *H. xanthoprymnus* WARNCKE. Охарактеризована изменчивость, основанная на изучении новых материалов, для *H. constrictus* SMITH, *H. duplocinctus* VACHAL, *H. georgicus* BLÜTHGEN, *H. hedini* BLÜTHGEN, *H. modernus* MORAWITZ, *H. palustris* MORAWITZ, *H. patellatus* MORAWITZ, *H. rubicundus* (CHRIST) и *H. sexcinctus* (FABRICIUS). Также приведены новые данные по распространению 28 видов.

Introduction

The genus *Halictus* LATREILLE in the volume as defined by PESENKO (1984a, 2000, 2004) is a mostly Palaearctic group in its occurrence and includes 90 currently recognized species. Only five species inhabit North America (including the Holarctic *H. rubicundus*) and only four species, *H. acrocephalus* BLÜTHGEN, *H. constrictus* SMITH, *H. fimbriatus* SMITH (= *H. asperatus* BINGHAM), and *H. latisignatus* CAMERON are Oriental (northern Oriental) in occurrence. Most 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* (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. 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.

In 1984-1986, I published a series of papers (see a list in References) treated the taxonomy of the genus *Halictus* including the results of examination of the types of the majority of nominal species and study of vast material mostly deposited at ZISP. For elapsed twenty years, a large new material has appeared. Also a number of important papers not accounted for my abovementioned revision were published by EBMER (1984, 1985a, 1985b, 1988, 1996) and WARNCKE (1984, 1986).

The paper presents some new results of the study of the genus *Halictus*. The most part (in total of over 20, 000 specimens) of the material examined is deposited at ZISP. A great number of bees were provided for study from IBSV. The majority of the material examined from China (497 of 557 specimens in the total; see PESENKO & WU, 1997) is deposited at IZB. The following abbreviations are used in the text:

AMNY ..... American Museum of Natural History, New York, USA (curators J.G. ROSEN);

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, Puchenau, Austria;

HMB ..... Hungarian Natural History Museum, Budapest, Hungary (curator J. PAPP);

IBSV ..... Institute of Biology and Soil Sciences, Russian Academy of Sciences, Vladivostok, Russia (curator A.S. LELEJ);

IZAB ..... Institute of Zoology, Academy of Sciences, Baku, Azebaijan (curator H. ALIEV);

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);

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);

NMW ..... Naturhistorisches Museum, Wien, Austria (curator M. FISCHER);

OLML ..... Oberösterreichisches Landesmuseum/Biologiezentrum, Linz, Austria (curator F. GUSENLEITNER);

PACK ..... Private collection of Dr. Laurence PACKER; York University, North York, Canada;

SCH ..... Private collection of Maximilian SCHWARZ; Ansfelden by Linz, Austria.

UZMC ..... Universitetets Zoologiske Museum, Copenhagen, Denmark (curator B. PETERSEN);

UUL ..... Utah State University, Logan, USA (curator T.L. GRISWOLD);

ZISP ..... Zoological Institute, Russian Academy of Sciences, St. Petersburg (curator Yu.A. PESENKO);

ZMM ..... Zoological Museum, Moscow University, Moscow, Russia (curator A.V. ANTROPOV).

The species are listed below in the alphabet order within subgenera. The countries, from which a species is recorded for the first time, are marked by asterisks. The depositary place of the material is indicated only in those cases, when it is other than ZISP. The scale line in the lower part of plates means as follows: 1.0 mm for figures of head capsule, parts of mesosoma, metasomal terga and sterna; 0.5 mm for figures of flagellomeres and gonostyli.

Acknowledgments

I am grateful to the collection owners and curators above for the supplied material for study, especielly Mr. M. SCHWARZ, Mr. A.W. EBMER and the late Dr. K. WARNCKE for some paratypes and other comparative material given by them to the collection of ZISP.

Material

Halictus (*Acalcaripes*) *patellatus* MORAWITZ, 1874

Distribution: A widely Mediterranean species considered to be consisting of two subspecies. The western subspecies, *H. patellatus taorminicus* STRAND, 1921, is distributed in northwestern Africa (Morocco and Algeria); southern Europe from Portugal and Spain in the west to the southern Volga River area and northern Caucasus in the east, as far in the north as eastern Austria; southwestern Asia: *Georgia, Armenia, *Azerbaijan, Asia Minor, Syria, and northern Iran (zone of intersubspecific transgression). The eastern subspecies, *H. patellatus patellatus* MORAWITZ, 1874 (= *H. wagneri* BLÜTHGEN, 1937), differing from *H. patellatus taorminicus* in shiny flagellomeres of the male provided with wider proximal and distal hair bands and darker legs of the female, occurs in Daghestan, southwestern Turkmenistan (Kopet Dagh Ridge), and northern Iran (Kopet Dagh and Elburs Ridges; WARNCKE, 1982: 160).

First records: Georgia (*H. patellatus taorminicus*): Borzhomi, Gagry, Kodzhory, and Lagodekhi. Azerbaijan (*H. patellatus taorminicus*): Adzhikend, Akhau, Gaybaly, Gosmolyan, Gyandzha (Gyanja), Ilisu (Khaki), Kalakhan, Kusary, Kushkaim, Kyukhyu (Shakhbuz), Lagin, Lenkoran, 20 km SE Lerik, Milakh, Nizhnii Gaduk, Tablayag, Tash-bulak, Vartashen, and Zakataly.

Variability: (1) In one of 3♂♂ from Slavyansk-on-Kuban (Krasnodar Province of Russia), flagellum shiny. (2) In one of 3♀♀ from Megry and one of 7♀♀ from Vedy (Armenia), legs completely dark. (3) In seven of 14♀♀ examined from Turkey (Tortum Erzurum, Karaluha, and Posof; collected by H. ÖZBEK), hind tibia and basitarsus rusty-yellow entirely; in the rest females (from Uledere, Ulukisla, and Yüksekova; collected by K. WARNCKE), most part of hind tibia and basitarsus dark.

Halictus (*Argalictus*) *dschulfensis* BLÜTHGEN, 1936

Distribution: A Caucasian-Iranian species. Southeastern Asia Minor (WARNCKE, 1984: 312), *Armenia, Azerbaijan (BLÜTHGEN, 1936: 282), and Iran (BLÜTHGEN, 1936: 282; WARNCKE, 1982: 161).

First record for Armenia: Megry, flowers of *Tamarix*, 29.v.1977, leg. Yu. PESENKO, 2♀♀.

Halictus (*Argalictus*) *fatsensis* BLÜTHGEN, 1936

Distribution: An eastern Mediterranean species. Asia Minor (EBMER, 1975: 53; WARNCKE, 1984: 311), *Jordan, Israel, Cyprus (BLÜTHGEN, 1955: 12, 13; EBMER, 1975: 53), and Iraq (BLÜTHGEN, 1936: 276).

First record for Jordan: 80 km E Agaba, 11.iv.1989, leg. J. GUSENLEITNER, 1♀ (determined by A. EBMER).

Halictus (*Argalictus*) *luganicus* BLÜTHGEN, 1936

Distribution: A Pontic species. Southern Ukraine (BLÜTHGEN, 1936: 285), *southern European Russia (Volgograd Province and Daghestan), *Georgia, *Azerbaijan, and Asia Minor (EBMER, 1975: 51).

First records: Russia: "Sarepta" [Volgograd], 18-29.vi.1906, leg. L. WOLLMANN, 3♀♀; Sarepta, 11.vi.1907, leg. M. KOCH, 1♀); Daghestan: Derbent, 29.v.1930, on flowers of *Pisum sativum*, leg. E. PESOTSKAYA, 1♀. Georgia: "Tiflis" [Tbilis], 1♀. Azerbaijan: Gyandzha (Gyanja), 10.vii.1932, 1♀; 8.vi.1933, 1♀, leg. M. VINOVSKII.

Halictus (*Argalictus*) *submodernus* BLÜTHGEN, 1936

Halictus submodernus BLÜTHGEN, 1936: 278, Figs 6, 7. ♀. Holotype: ♀, Iran: Kala Basuft (Huzestan); BML; examined.

Taxonomy: EBMER, 1975: 59 (key); WARNCKE, 1984: 312.

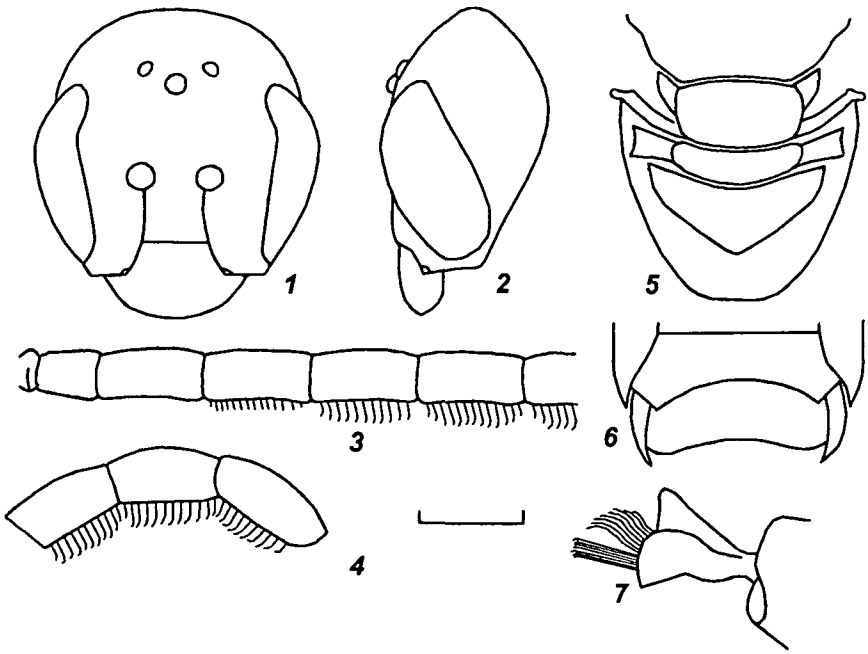
Distribution: Eastern Turkey (Hakkari il; WARNCKE, 1984: 312) and Iran (BLÜTHGEN, 1936: 278; EBMER, 1978a: 18; WARNCKE, 1982: 163). The record of the species from Afghanistan by EBMER (1984: 314) belongs to *H.* (*Protohalictus*) *nuristanicus* sp.n. (see below).

Material examined: Turkey: Hakkari il, 1250 m, südl. Beytüssebap, 10.viii.1985, leg. K. WARNCKE, 7♂♂, 3♀♀; Hakkari il, 5 km W Uludere, 4.vi.1980, 1100 m, leg. K. WARNCKE, 1♀. Iran: Kala Basuft (Huzestan); 1♀ (holotype; BML); «S. W. Persien», 1♀ (paratype; MNB); 25 km SE Jahrush, 16.vii.1955, leg. D. STEINBERG, 1♀; Jezh-rud River, 40 km NE Tehran, leg. D. STEINBERG", 1♀.

Hitherto, the species was known only from the female. The new material above includes 7♂♂ and 3♀♀ caught at the same time and in the same locality (Beytüssebap in Asia Minor). Such a circumstance and as well a strong similarity of these males and

females permit to conclude that all of them belong to the same species and to describe the new male of *H. submodernus*.

Diagnosis: The female of *H. submodernus* is most close to the female of *H. dschulfensis* BLÜTHGEN in many characters of the structure, sculpture, and pubescence of the body. It can be considered that these species are very close to each other also in males, but the male of *H. dschulfensis* is unknown. *H. submodernus* differs from *H. dschulfensis* in the stronger developed vertex and matte metasomal tergum I. Among other species of the subgenus *Argalictus*, *H. submodernus* is similar in the male to *H. humkalensis* BLÜTHGEN and *H. tibialis* WALKER in the following characters: fore tarsus usual, not narrowed; scutellum densely uniformly punctate; mesoscutum relatively finely punctate (about 24-32 μm), covered with dense appressed pubescence; propodeum long; tergum IV distinctly roundly emarginate; imagined line connected bases of hairs in



Figs 1-7: *Halictus submodernus* BLÜTHGEN, ♂ (from Turkey: Beytüssebap): (1) head in front view; (2) head in lateral view; (3) 1st-5th flagellomeres; (4) 9-11th flagellomeres; (5) posterior half of mesosoma in dorsal view; (6) metasomal sterna IV and V; (7) gonostylus, right, view from outside.

distal brush of gonostylus curved at right angle. *H. submodernus* differs from *H. humkalensis* and *H. tibialis* in the following characters: head much thicker; vertex stronger developed and convex; antenna longer, reaching metasoma; flagellum ochre-yellow, only on upper side narrowly brown; 4-10th flagellomeres on lower side provided with a row of moderately long hairs; metapostnotum widely triangular along posterior margin.

M a l e (nov.). S t r u c t u r e : Body length 10.0-11.5 mm. Head somewhat wider than mesosoma, elliptic in frontal view, 1.1 times as high as wide. Clypeus wide, 1.3 times as high as wide (its width estimated as a distance between anterior tentorial fovea); 2/3 or 1/2 of its height situated below eyes. Vertex strongly developed and convex, distance between lateral ocellus and posterior margin of vertex not less than twice as great as distance between inner margins of lateral ocelli; vertex uniformly rounded along upper margin in frontal view to head (Fig. 1). Head very thick; genal area twice as wide as eye in lateral view to head (Fig. 2). Antenna long, reaching metasoma. Length of 1st flagellomere 1.1-1.2 times its maximum diameter; equal to half length of subsequent flagellomeres, those 2.0-2.2 times as long as wide. 4-10th flagellomeres (in some individuals, 3rd-11th ones) on lower side provided with a row of moderately long hairs, length of those less than half diameter of flagellomere (Figs 3, 4); such a cilia similar to that in *H. hedini* BLÜTHGEN of the subgenus *Protohalictus*, but twice shorter than that in *H. quadricinctus* (FABRICIUS) and other species of the subgenus *Halictus* s.str. Mesoscutum not depressed along admedian line, straight at anterior margin. Propodeum long, its dorsal surface (metapostnotum) nearly as long as scutellum, widely roundly passing onto lateral and posterior vertical surfaces of propodeum. Metapostnotum widely triangular along posterior margin, with distinct median angle (Fig. 5), flat, distinctly separated from lateral and posterior vertical surfaces of propodeum by step. Legs usual. Metasoma elongate, nearly cylindrical, parallel-sided. Posterior areas of metasomal terga narrow, about 1/4 of tergal lengths, distinctly separated from tergal discs by step along all tergal width. Tergum VII with shallow rounded incision in middle of topologically posterior margin. Sternum IV widely and deeply roundly emarginate. Metasomal sternum V slightly emarginate, nearly straight along posterior margin (Fig. 6). Sternum VI flattened, in posterior half with a median tuft of short, relatively dense, fuscous hairs directed backward. Genital capsule of typical structure for the subgenus; distal brush of (upper) gonostylus situated in two planes, because imagined line connected bases of hairs in the brush curved at right angle (Fig. 7); lower gonostylus lost.

S c u l p t u r e : Clypeus regularly and densely punctate by elongate punctures (25-35 μm / 0.2-0.4), polished on interspaces, shiny. Frons distinctly densely punctate (20 μm / 0.1-0.3), shagreened on interspaces, matte. Vertex somewhat sparser and coarser punctate, except for a median area behind eyes with very sparse punctation (30-45 μm / 1-3). Mesoscutum regularly densely punctate (25-30 μm / 0.2-0.4), polished on interspaces, shiny. Mesopleura finely alveolate-rugulose, matte. Metapostnotum finely alveolate-rugulose or striate on sides; in the middle granulate, matte; at posterior angle nearly smooth. Lateral and posterior vertical surfaces of propodeum on upper parts, very finely and densely punctate by deep punctures (20 μm / 0.1-0.3), matte. Dorsal surface of metasomal tergum I regularly, microscopically finely and densely punctate (15 μm / 0.2-0.4), shagreened on interspaces, nearly matte. Subsequent terga gradually with more and more sparse and obscure punctation, shinier.

C o l o r a t i o n : Body black. Clypeus on lower half yellow; labrum dark-yellow, mandibles black, without yellow spot. Flagellum ochre-yellow, only on upper side narrowly brown, two or three last segments dark-fuscous. All coxae and trochanters and hind femora dark-fuscous; fore and middle femora and partly tibiae brownish-yellow or reddish-yellow; all tarsi and partly tibiae yellow; hind tibia with large black spot on inner

and outer surfaces. Wings hyaline; veins and pterostigma brownish yellow. Posterior area of metasomal terga horny-yellow, translucent on posterior half.

Pubescence: Head (except vertex), mesosoma (except metapostnotum), convex surface and posterior part of dorsal surface of metasomal tergum I covered with dense white plumose appressed or semi-erect hairs. Terga I-V with posterior bands of dense white appressed hairs; all bands not wide, but continuous and not narrowed in middle. Terga II and III also with wide, but not dense anterior bands. Terga VI and VII pubescent by relatively short, black hairs.

Halictus (*Argalictus*) *tibialis* (WALKER, 1871)

(= *H. distinctus* WALKER, 1871; *H. dampti* ALFKEN, 1927; *H. dampfi*: BLÜTHGEN, 1930: 70, justified correction).

Distribution: An eastern Mediterranean species. Egypt (WALKER, 1871: 42; ALFKEN, 1927: 103, *H. dampti*; BLÜTHGEN, 1933: 15, *H. distinctus*; 1934a: 188; 1955: 12), Israel (BLÜTHGEN, 1955: 12; EBMER, 1975: 51), and *Jordan.

First record for Jordan: Fidan, 125 km N Agaba, 6.iv.1989, leg. J. GUSENLEITNER, 1 ♀.

Halictus (*Halictus*) *brunnescens* (EVERSMANN, 1852)

(= *H. quadricinctus* var. *maximus* FRIESE, 1916; *H. quadricinctus* var. *aegyptiacus* FRIESE, 1916).

Distribution (the records of the species by BLÜTHGEN, EBMER, FRIESE, and WARNCKE below were published under the names *H. quadricinctus* var. *aegyptiacus*, *H. quadricinctus aegyptiacus*, or *H. aegyptiacus*). A southern Palaearctic species, as far in the east as Buryatia, common in warm zones. North Africa: Morocco (EBMER, 1976: 217), *Tunisia, and Egypt (FRIESE, 1916: 30; BLÜTHGEN, 1933: 16; 1934a: 188); southern Europe from Spain in the west (BLÜTHGEN, 1924: 343), as far in the east as southern Urals, to Austria, Czech (EBMER, 1988: 551), and *middle European Russia (Bashkiria) in the north; Asia: Israel (BLÜTHGEN, 1955: 8), Asia Minor (WARNCKE, 1975: 112), *Georgia, *Armenia, *Azerbaijan, Afghanistan (EBMER, 1980: 470), Iran (BLÜTHGEN, 1937: 105; WARNCKE, 1982: 164; EBMER, 1978a: 12), Pakistan (EBMER, 1980: 480), *south of Eastern Siberia (Buryatia), *Kazakhstan, Turkmenistan, Uzbekistan, *Kyrghyzstan, northern China (Xinjiang Uygur, Nei Mongol and Ningxia Hui Autonomous Regions, Qinghai Province) (PESENKO, 1984d: 456; PESENKO & WU, 1997: 202), and *northern India.

First records: Tunisia: 40 km W Jendouba. Georgia: Gori, Lagodekhi, and Tbilis. Armenia: Megry and Vedy. Azerbaijan: Alty-agach, Ach-dara, Baku, Geok-topa, Gosmolyan, Gyandzha, Khanaga, Kutkashen, Lalakeran, Lenkoran, Lerik, Margushevan, Milakh, Nakhichevan, Ordubad, Pensa, Saagly, Shemakha, Zagulba, and Zengelyash. Kazakhstan: Aktekendy, Ak-suat, Almaty, 70 km W Aktyubinsk, Ayaguz, Bek-chogur, Chelkar, Chinarev, Lake Dubovoe, Dzhambeyty, Dzhambul, Dzhansugurov, Khantag, Kharkin, Kok-dushui, Kok-pekty, Koksengir, Kurday, Kuzundla River, Lugovaya, Mugodzhary Mts., Przhevalsk, Sarkand, Semipalatinsk, Talgar, Taygak, Temir, Turbat, Turkestan, Uch-ayri, Uralsk, Yanvartsevo, and Zhana-Ark. Kyrghyzstan: Ala-buk, Dzhany-bazar, Kanysh-kiya, Ken-kol River, Toktogul, and Turdak River Valley. Middle European Russia: Bashkiria: Belebey. Eastern Siberia: Buryatia: Kyakhta and Ust-kiran. India: Himachal Pradesh, Kulu, 1200 m, 29.iv.1990, leg. L. PACKER, 2♀♀ (PACK).

Halictus (*Halictus*) *duplocinctus* VACHAL, 1902

Halictus duplocinctus VACHAL, 1902: 225. ♀♂. Lectotype: ♀, "Ash." [Turkmenistan: Ashgabat]; designated here; IZK. The references to diagnoses are given in the section "Taxonomy" below.

Halictus magnificus NURSE, 1903: 541. ♀. Syntypes: India: "Kashmir"; AMNY and BML. Synonymy (= *H. quadricinctus* race *duplocinctus*) by BLÜTHGEN (1922: 63).

Taxonomy: BLÜTHGEN, 1923a: 308 (*H. quadricinctus* race *brunnescens*); 1923b: 68 (key), 123 (key), 137; 1926a: 386 (*H. quadricinctus* race *duplocinctus*); 1931b: 209 (*H. brunnescens*); BLÜTHGEN in POPOV, 1935: 361 (*H. quadricinctus* ssp. *duplocinctus*).

Distribution (records of the species by BLÜTHGEN, EBMER, and WARNCKE below were published under the names *H. quadricinctus brunnescens* or *H. brunnescens*). A Central Asian species, occurring mostly in deserts. Afghanistan (BLÜTHGEN, 1961: 281; EBMER, 1974: 186), Iran (VACHAL, 1902: 225; EBMER, 1978a: 12), *southern Kazakhstan, Turkmenistan (VACHAL, 1902: 225), Uzbekistan, Tajikistan (BLÜTHGEN in POPOV, 1935: 360), *Kyrghyzstan, Pakistan (BLÜTHGEN, 1955: 8), northern India (BLÜTHGEN, 1923b: 137), and *northwestern China (Xinjiang Uygur AR).

First records: Kazakhstan: Arkharly Mt., Ayaguz, Chardara, Dzhambul, Kyzylaus, Talgar, Taty, and Turbat. Kyrghyzstan: Bishkek and Susamyr. China: Xinjiang Uygur AR: 150 km ESE Inin (Kuldzha), leg. N. PRZEWALSKI, 1♀ ("*H. quadricinctus* var., F. MORAWITZ det.".

Variability: In 5♀♀ from southeastern Turkmenistan (Karabil Ridge, 150 km ENE Takhta-Bazar), metasoma without red pattern and legs dark entirely.

Halictus (*Halictus*) *quadricinctus* (FABRICIUS, 1776)

(= *Apis hortensis* GEOFFROY in FOURCROY, 1785; *Halictus quadristrigatus* LATREILLE, 1805; *Hylaeus grandis* ILLIGER, 1806; *Halictus ecaphosus* WALCKENAER, 1817; *H. chaharensis* YASUMATSU, 1940).

Distribution: A nearly trans-Palaearctic species (absent in North Africa and the Russian Far East). Europe nearly throughout, except for Ireland and Great Britain; northern and moderate Asia as far in the east as eastern China: Asia Minor (WARNCKE, 1975: 112), Israel (BLÜTHGEN, 1955: 8), Iran (EBMER, 1978a: 12; WARNCKE, 1982: 163),

northern Afghanistan (BLÜTHGEN, 1961: 281; EBMER, 1974: 186; 1980: 470), Transcaucasia, Kazakhstan, Uzbekistan, Tajikistan, Kyrghyzstan, south of Western Siberia (Orenburg, Novosibirsk, Omsk, and Tomsk Provinces), Altai, *south of Eastern Siberia (Buryatia, south of Irkutsk Province and Krasnoyarsk Territory), northern China (Xinjiang Uygur, Ningxia Hui and Nei Mongol AR, Gansu, Qinghai, Shanxi, Hebei, Liaoning, Jilin, Heilongjiang, and Shandong Provinces; MORAWITZ, 1980: 367; 1890: 363; EBMER, 1978b: 187; PESENKO, 1984d: 455; WU, 1985: 139; PESENKO & WU, 1997: 202), and Mongolia (PESENKO, 1984d: 455). Records of the species from Africa (e.g., from Morocco; BLÜTHGEN, 1923a: 251; 1933: 59) belong to *H. brunnescens*.

First record for Eastern Siberia. Buryatia: Kyakhta; Irkutsk Province: Burenkhan Mt., Irkutsk, and Khudyakovo; Krasnoyarsk Territory: Bunbui, Krasnoyarsk, Maklakhovskoe, Novoselovo, and Lake Shira.

Halictus (*Hexataenites*) *cochlearitarsis* (DOURS, 1872)

Lucasius cochlearitarsis DOURS, 1872: 352, Figs 4 and 5 on Pl. XXVIII. ♂. Lectotype: ♂, «Al» ["Algerie"; correctly: Montpellier (France)]; designated here; IZK. The references to diagnoses are given in the section "Taxonomy" below.

Halictus anomalipes LEBEDEV, 1911: 310. ♂. Holotype: ♂, Azerbaijan: "Elisabthpol" [at present Gyandzha = Gyanja]; lost. Synonymy by BLÜTHGEN (1922: 62).

Taxonomy: BLÜTHGEN, 1923b: 79 (key), 139; 1924: 484 (key) 1936: 272 (♀); EBMER, 1969: 148 (key), 151 (key), 159, Fig. 6.

Distribution: A widely northern Mediterranean species. Southern Europe from Spain as far in the east as Romania, Bulgaria, Greece (BLÜTHGEN, 1936: 272; EBMER, 1975: 46; 1979: 118; 1981: 108), Macedonia (BLÜTHGEN, 1923b: 139; 1936: 272; EBMER, 1975: 46), Ukraine (BLÜTHGEN, 1955: 9), and *southern European Russia, to southern Austria (EBMER, 1969: 159) in the north; southwestern Asia: Asia Minor (BLÜTHGEN, 1955: 9; WARNCKE, 1975: 111), *Armenia, Azerbaijan (LEBEDEV, 1911: 310, *H. anomalipes*; BLÜTHGEN, 1936: 272).

First records: Russia: Volgograd Province: Volgograd; Rostov Province: Bagayevskii, Persiyanovka, Rostov-on-Don, and Taganrog; Krasnodar Territory: Andreyevskoe canyon (Semisam Ridge), Baksan, Gelendzhik, Golubitskaya, and Krasnodar; Stavropol Territory: 15 km W Stavropol; Daghestan: Bashly-kayakent. Armenia: Vedy.

Halictus (*Hexataenites*) *resurgens* NURSE, 1903

(= *H. turkomannus* PÉREZ, 1903; *H. holtzi* SCHULZ, 1906; *H. asiaeminoris* STRAND, 1921).

Distribution: An eastern Mediterranean and Central Asian species, common in steppes and deserts. Northeastern Africa: Egypt (BLÜTHGEN, 1933: 15; 1934a: 188); southeastern Europe: Bulgaria, Albania (BLÜTHGEN, 1955: 9), Macedonia (BLÜTHGEN, 1955: 9; EBMER, 1975: 46), Romania (EBMER, 1974: 186), Crete (SCHULZ, 1906: 49; EBMER, 1981: 107), *Moldova, Ukraine (Crimea; BLÜTHGEN, 1955: 9), and *southern European Russia; Asia Minor (STRAND, 1921: 312; WARNCKE, 1975: 111; 1984: 316), Israel (BLÜTHGEN, 1955: 9), *Georgia, *Armenia, *Azerbaijan, Iran (EBMER,

1978a: 17), Afghanistan (BLÜTHGEN, 1961: 281; EBMER, 1974: 187; 1980: 471), *southern Kazakhstan, Turkmenistan, Uzbekistan, Tajikistan (BLÜTHGEN in POPOV, 1935: 360; BLÜTHGEN, 1955: 9), *Kyrghyzstan, northern Pakistan (BLÜTHGEN, 1955: 9), northern India (NURSE, 1903: 542), and northwestern China (Xinjiang Uygur AR; MORAWITZ, 1880: 367, «eastern Tian Shan», "*H. sexcinctus*"; PESENKO, 1984d: 457; PESENKO & WU, 1997: 205). The record of the species from Spain by BLÜTHGEN (1924: 346, *H. holtzi*) was based on misidentification.

First records: Moldova: Kishinev and Chumai. Russia: Stavropol Territory: Aleksandrovskii, Levokumskoe, and Stavropol; Chechen Republic: Itumkala; Daghestan: Derbent, Makhachkala, and Manaskent. Georgia: Bogdanovka, Kodzhory, and Tbilis. Armenia: Dzhafarkhan, Echmiadzin, Erevan, Megry, Oktemberyan, and Vedy. Azerbaijan: Adzhikend, Agdusabedy, Akstafa, Alekseyevka (near Lenkoran), Alpaut (Muganskaya steppe near Iranian border), Badamli, Baku, Belyasuvar (Takysh), Boradygya, Dzhagry, Dzhan-kurgan, Dzhulfa, Fizuli, Geok-topa, Gyandzha, Kerrar (Kyurdamir), Khanlar, Khok, Khumsan, Kilyazi, Kumbashi, Kusary, Lenkoran, Lerik, Mardakert, Margushevan, Milaz, Milskaya, Minchechaur, Murkhuz (Sisian), Nakhichevan, Ordubad, Saatly, Shemakha, Shusha, Sura, Vel, and Zakataly. Kazakhstan: Almaty, Kara-su, 20 km N Kentau (Karatau Ridge), Keskelen canyon (Zailiiskii Ala Tau Ridge), Kurdai, Maidam-tala, and Turkestan Station. Kyrghyzstan: Ala-buk, Lay-talaa, Manas, and Osh.

Halictus (*Hexataenites*) *sexcinctus* (FABRICIUS, 1775)

Distribution: A western Palaearctic species considered to be consisting of two subspecies. *H. sexcinctus sexcinctus* (FABRICIUS, 1775) (= *Apis ichneumonea* CHRIST, 1791; *Hylaeus arbustorum* PANZER, 1797; *Andrena rufipes* SPINOLA, 1806) inhabits Europe nearly throughout (except Ireland, Great Britain, and Finland) and *Western Siberia. The southern subspecies, *H. sexcinctus albohispidus* BLÜTHGEN, 1923 (= *H. sexcinctus* var. *hybridopsis* BLÜTHGEN, 1923), differing from the nominotypical one in the larger (14-15 mm long) and richer pubescent body in both sexes, yellow labrum in the male, and thicker head of the female, is distributed in the Canary Islands, Asia Minor (BLÜTHGEN, 1923b: 138), Israel, Armenia (WARNCKE, 1982: 162), *Azerbaijan, and Iran (MORICE, 1921: 825, "*H. scabiosae*"; WARNCKE, 1982: 162; EBMER, 1978a: 17; 1988: 554). The transgression zone between these subspecies is situated in Daghestan and Georgia.

First records: Western Siberia (*H. sexcinctus sexcinctus*): Orenburg. Azerbaijan (*H. sexcinctus albohispidus*): Alty-agach, Baku, Bilav, Byl-chaly, Gosmolyan, Gyandzha, Kuba, Kusary, Lalakeran, Lenkoran, Lerik, 35 km ENE Nakhichevan, Nizhnii Gaduk, Ordubad, and Shemakha.

Halictus (*Lampralictus*) *modernus* MORAWITZ, 1876

Halictus modernus MORAWITZ, 1876: 217 (key), 235. ♀. Holotype: ♀, Uzbekistan: environs of Samarkand; ZMM; examined. The lectotype designation by WARNCKE (1982: 147) is unnecessary.

Taxonomy: BLÜTHGEN, 1923b: 67 (key); 1936: 280, Figs 8, 9; EBMER, 1974: 190; 1975: 54; 1984: 315 (♂), Figs 3-5; PESENKO, 1984a: 348, Figs 5, 6, 29.

Distribution: A rare species, occurring in high lands of Central Asia. *Southeastern Turkmenistan, Uzbekistan (MORAWITZ, 1876: 235), Kyrghyzstan (PESENKO, 1984a: 348), Afghanistan (BLÜTHGEN, 1961: 281; EBMER, 1974: 190; 1980: 473; 1984: 315), northern Pakistan (EBMER, 1980: 480; 1984: 320).

Material examined (11♀♀). Turkmenistan (first record): Hodschapil, Krkgisata (Kugitang Tau), 1000 m, on flowers of *Tamarix*, 4.v.1995, leg. K. SCHÖNITZER, 6♀♀. Uzbekistan: Samarkand, 1♀ (holotype; ZMM). Kyrghyzstan: Kugart River Valley (southwestern slopes of Ferghana Ridge), 9.v.1925, leg, DOBRZHANSKI, 1♀. Afghanistan: Kabul, 19.vi.1988, 1♀. Pakistan: Baluchistan, Hanna, 15 km E Quetta, 24.v.1984, leg. J. ROZEN, 2♀♀ (AMNY, via L. PARKER).

Variability: Although the eleven females examined undoubtedly belong to the same species, a significant variation has been revealed between them in the body size, form of the head, punctation of the vertex and mesoscutum and the sculpture of the metapostnotum.

(1) 6♀♀ from Hodschapil (Turkmenistan): body length 10.0-10.5 mm; head shorter (*height to width ratio 0.8*); *tooth on genal area relatively small*; *vertex sculpture variable*: sparsely punctate, polished on interspaces to densely punctate, finely shagreened on interspaces; mesoscutum sculpture variable: sparser and finer punctate to denser and coarser punctate; metapostnotum finely and densely striate or granulate on anterior half, polished on posterior half.

(2) 1♀ from Kugart (Kyrghyzstan): body length 10.5 mm; head higher (0.9); tooth on genal area relatively large; vertex densely punctate, finely shagreened on interspaces; mesoscutum denser and coarser punctate; metapostnotum finely and obscurely granuloso-striate on anterior two thirds, polished on posterior third.

(3) 1♀ from Kabul: body length 10 mm; head of intermediate height (0.85); tooth on genal area of medium size; vertex densely punctate, finely shagreened on interspaces; mesoscutum denser and coarser punctate; metapostnotum matte (finely densely strigate and granulose) entirely.

(4) 2♀♀ from Quetta: body length 9 mm; head of intermediate height (0.85); tooth on genal area relatively small; vertex densely punctate, finely shagreened on interspaces; mesoscutum denser and finer punctate; metapostnotum finely and densely granulate nearly throughout, silk-shiny only along posterior margin.

Halictus (*Monilapis*) *beytueschebapensis* WARNCKE, 1984, stat. n.

Halictus (*Halictus*) *senex beytüschebapensis* WARNCKE, 1984: 313. ♂. Holotype: ♂, Turkey: Beytüssebap (Hakkari il); OLML.

Distribution: Eastern Asia Minor.

Material examined: Turkey: Hakkari il: Beytüssebap, 1250 m, 10.viii.1983, leg. K. Warncke, 7♂♂ (paratypes), 6♀♀ ("*Halictus senex* K. WARNCKE det."); Hakkari il: Sat Dag, Varegös SW Yüksekova, 1700 m, 8.viii.1983, leg. K. WARNCKE, 1♂ (paratype).

The form has been originally described as the second subspecies of *H. senex* (FÖRSTER, 1860) (a junior synonym of *H. compressus* (WALCKENAER, 1802); see PESENKO, 1985: 93), inhabiting Turkey, in addition to "*H. senex lunatus* WARNCKE,

1975". WARNCKE (1984: 313) did not describe the female of his "*H. senex beytüschebapensis*": "Die ♀♀ sind nicht zu unterscheiden. Sie werden hier auch nicht als Paratypen bezeichnet, obwohl sie zahlreich gefangen wurden". On the basis of the material examined, I consider it a separate species. The main differences between *H. beytueschebapensis* and *H. compressus* are keyed below. These differences are supported by the comparison of *H. beytueschebapensis* with *H. compressus lunatus*. I studied the latter form from the holotype, a large series of paratypes (11♂♂, Turkey: Ardahan; 1♂, Turkey: Gölebert), a series of females caught together with male paratypes (7♀♀, Turkey: Ardahan) and a male from Iran (60 km S Chalus; determined by A. EBMER as "*Halictus lunatus*"). The key below includes also a short diagnosis of the female of *H. beytueschebapensis*. This diagnosis may be formally considered as its description.

1 Both sexes: smaller, body length 7.5-8.5 mm; pubescence of head and mesosoma white. Male: proximal broadening of mandible weaker; antennae shorter, reaching only propodeum; flagellum fuscous or black on lower side; mediodorsal tassel of gonostylus consisting of relatively short and sparse hairs, weakly separated from hairs forming a brush at gonostylar apex directed backward. Female: lateral surfaces of propodeum near border with metapostnotum almost smoothed, shiny; pubescence of outer surface of hind tibia white ..... *H. beytueschebapensis* WARNCKE

- Both sexes: larger, body length 9.0-10.5 mm; pubescence of upper half of head and dorsal surface of mesosoma brownish or brownish yellow (in fresh individuals). *Male*: proximal broadening of mandible stronger, forming a rounded, but distinct angle of about 135°; antennae longer, reaching metasoma; flagellum ochre- to brownish-yellow on lower side; mediodorsal tassel of gonostylus consisting of relatively long and very dense hairs, distinctly separated from hairs forming a brush at gonostylar apex directed backward. Female: lateral surfaces of propodeum near border with metapostnotum densely punctate, matte; pubescence of outer surface of hind tibia dirty-yellow..... ..... *H. compressus* (WALCKENAER)

***Halictus* (*Monilapis*) *compressus* (WALCKENAER, 1802)**

(= *Apis flavipes* PANZER, 1798, nec FUEßLIN, 1775, nec FABRICIUS, 1787; *Hylaeus tomentosus* HERRICH-SCHÄFFER, 1840; *H. senex* FÖRSTER, 1860; *Halictus eurygnathus* BLÜTHGEN, 1931; *H. eurygnathopsis* BLÜTHGEN, 1936; *H. veneticus* EBMER, 1969).

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 (EBMER, 1979: 120) in the west, as far in the east as Volga River (PESENKO, 1985: 95), to Poland (PESENKO et al., 2000: 160) and Udmurtia (SITDIKOV, 1986: 104) in the north, also Georgia (PESENKO, 1985: 95), Asia Minor (except for eastern Turkey; WARNCKE, 1975: 108), and Near East (WARNCKE, 1982: 149). The eastern part of the species range is occupying by *H. compressus transvolgensis* PESENKO, 1985: Bashkiria, Perm and Ulyanovsk Provinces, south of Omsk and Irkutsk Provinces, south of Krasnoyarsk Territory, Kazakhstan (PESENKO, 1985: 95), *Kyrghyzstan, and northwestern China (Xinjiang Uygur AR; WU, 1985: 139; PESENKO & WU, 1997: 205). Two the rest subspecies are more local: *H. compressus lunatus* WARNCKE, 1975 is

known from eastern Turkey (WARNCKE, 1975: 121; 1982: 149) and northwestern Iran (EBMER, 1978a: 21), *H. compressus gissaricus* PESENKO, 1985, from Tajikistan.

First record for Kyrghyzstan: Karakoi, 30 km S Nakaut (northern slopes of Alai Ridge), 2600 m, 4.ix.1967, leg. V. TANASIJTSHUK, 2♂♂; Alarcha canyon, 20 km S Bishkek (Kirghiz Ridge), 1650 m, on flowers of *Chondrilla*, 12.ix.1986, leg. Yu. PESENKO, 11♂♂; Uch-debe, 15 km SSW Sufi-kurgan, 2500 m, dry gorge, 23.viii.1985, leg. Yu. PESENKO, 9♂♂; 10 km S Sary-bulak; 10 km SSW Teploklyuchenka (Terskei Ala Tau Ridge), 2500 v, 7.viii.1988, leg. Yu. PESENKO, 2♂♂; Lake Sary-chelek, 1800 m, 27.viii.1988, leg. Yu. PESENKO, 16♂♂; 30 km S Kazarman (eastern slopes of Ferghana Ridge), 2500 m, montane steppe, 22.viii.1988, leg. Yu. PESENKO, 14♂♂; 5 km E Alai-kuu (southwestern slopes of Ferghana Ridge), 2850 m, montane steppe, 18.viii.1985, leg. Yu. PESENKO, 1♂; 10 km SSE Lai-talaa (southwestern slopes of Ferghana Ridge), 1700 m, montane steppe, 15.viii.1985, leg. Yu. PESENKO, 1♂; 3 km W Oi-talaa (northeastern slopes of Alai Ridge), 2000 m, montane steppe, 19.viii.1985, leg. Yu. PESENKO, 3♂♂.

Halictus (*Monilapis*) *ponticus* BLÜTHGEN, 1934

Distribution: A rare eastern European, mostly steppe species. Bosnia (Kotlenice), *Romania, Krasnodar Territory of Russia (BLÜTHGEN, 1936: 293; PESENKO, 1985: 99), and northwest of Asia Minor (Chibukli; BLÜTHGEN, 1936: 293).

First record for Romania: Simnic, 24.vii.1982, leg. J. BANAZSAK, 1♂ (determined by A. EBMER).

In both sexes (female undescribed), the species is similar to the common *H. simplex* BLÜTHGEN in external characters. In addition to the presence of the mediodistal tassel in the male gonostylus, *H. ponticus* differs from the latter in males in the following characters: posterior hair bands on metsomal terga narrower and more sharp at anterior border; tergum II lost even tracts of anterior hair band.

Halictus (*Monilapis*) *rossicus* EBMER, 1978

(*Halictus rossicus* EBMER, 1978: 105; nom.n. pro *Halictus samarensis* BLÜTHGEN, 1936, nec 1926).

Distribution (BLÜTHGEN, 1936: 294; PESENKO, 1985: 100). A rare steppe species, occurring in the northern Pontic area. Southern Ukraine (Crimea and *Donezk Province); southern European Russia (*Voronezh, Saratov, Samara, and Orenburg Provinces, and *Stavropol Territory), *Azerbaijan.

Material examined: (27♂♂). Ukraine: Crimea: Urozhainoe Village (Simferopol District), 17.vii.1997, leg. S. IVANOV, 3♂♂; Staryi Krym, hills, 8-12.iv.1904, leg. D. GLAZUNOV, 11♂♂; Donezk Province (first record): 5 km NW Olkhovatka, 250 m, steppe slope, 13.viii.1990, leg. Yu. PESENKO, 7♂♂. European Russia: «Nikolaewsk (Gouv. Samara)» [Pugatshev in Saratov province)]; 1♂ (holotype of *H. samarensis* BLÜTHGEN; MNB); Samara Province: Kinel, 21.viii.1922, leg. A. LYUBISHCHEV, 1♂; Voronezh Province (first record): Nikolovo-Varvarinka Village, leg. A. LOPATIN, 1♂; Stavropol Territory (first record): Shpakovskoe Village, 27.vii.1989, leg. S. BELOKOBYLSKIJ, 2♂♂; 20 km W Stavropol, 17.vii.1989, leg. S. BELOKOBYLSKIJ, 1♂. Azerbaijan (first record): On the road Kuba -Shakh Dadh, upper part of forest zone, 7.viii.1933, leg. A. BOGACHEV, 1♂ (IZAB).

The species is similar to the common *H. sajoi*, differring from the latter in males in the following characters: dorsomedial tassel of gonostylus very narrow, consisting of a few hairs; flagellum paler (in areas of common occurrence), hair bands on flagellomeres much narrower; body nearly without metallic-grey lustre.

Halictus (*Monilapis*) *sajoi* BLÜTHGEN, 1923

(= *H. veneticus* MÓCZÁR, 1967; *H. bifidus* WARNCKE, 1975).

Distribution: A common species inhabiting steppes of eastern Europe and western Asia. Southeastern Europe from southern Germany in the west, eastern Austria in north (EBMER, 1969: 165), as far in the east as western Kazakhstan (PESENKO, 1985: 102); Asia: Asia Minor (WARNCKE, 1975: 121; 1975: 109; 1982: 158; 1984: 312, *H. bifidus*), northern Iran (WARNCKE, 1982: 158), Armenia (WARNCKE, 1982: 158, *H. bifidus*), Azerbaijan (BLÜTHGEN, 1923b: 132; PESENKO, 1985: 102), central and eastern Kazakhstan (PESENKO, 1985: 102), *southern Turkmenistan, and *Kyrghyzstan.

First records: Turkmenistan: Badghyz (Kyzyl-dzhar gorge), 4.vi.1986, leg. A. BUDRYS, 1♂. Kyrghyzstan: 20 km ESE Bystrovka (Baamskoe canyon), 1350 m, semi-desert, 13.vii.1979, leg. Yu. PESENKO, 1♂.

Halictus (*Monilapis*) *simplex* BLÜTHGEN, 1923

(= *H. ibex* WARNCKE, 1973: 282. Unnecessary new name for *H. simplex* BLÜTHGEN, 1923; non *Paralictus simplex* ROBERTSON, 1901).

Distribution: A relatively common European and western Asian species. Europe nearly throughout, except for Ireland, Great Britain, Scandinavia and Finland (BLÜTHGEN, 1923b: 132; EBMER, 1969: 164; 1974: 47; 1975: 64) from Spain (BLÜTHGEN, 1924: 347) in the west, as far in the east as Bashkiria, Perm and Chelyabinsk Provinces of Russia (PESENKO, 1985: 98), to Poland, Lithuania, Leningrad and Kirov Provinces, and Udmurtia in the north (PESENKO et al., 2000: 161); southwestern Asia: Asia Minor (WARNCKE, 1975: 108, *H. marchali*), Iran (WARNCKE, 1982: 157, *H. marchali*), Georgia, Армения, Azerbaijan; also isolated populations in *northern (Kokchetav) and *eastern Kazakhstan (Targabatai Ridge).

First records for Kazakhstan: Pavlodar Province: Borovoe near Kokchetav, 8.vi.1924, leg. G. BEY-BIENKO, 1♂; Semipalatinsk Province: Staropyatigorskoe Village (Tarbagatai Ridge), 1.vii.1962, leg. V. TOBIAS, 1♂; 45 km SE Tarbagatai Village, 1600 m, 2.viii.1986, leg. Yu. PESENKO, 6♂♂.

Halictus (*Monilapis*) *tetrazonius* (KLUG, 1817)

(= *H. furcatus* BLÜTHGEN, 1925; *H. galileus* BLÜTHGEN, 1955; *H. pannonicus* EBMER, 1969).

Distribution: A rare steppe species inhabiting the northern Mediterranean and Pontic basins in wider understanding (BLÜTHGEN, 1955: 15, *H. galileus*; EBMER, 1975: 63): northwestern Italy, eastern Austria, Slovenia, Croatia, Macedonia,

Montenegro, Hungary, Romania, Bulgaria, Greece, *Moldova, Ukraine, Krasnodar Territory of Russia (PESENKO, 1985: 101); Asia: Israel (BLÜTHGEN, 1955: 15, *H. galileus*; EBMER, 1975: 63), Georgia (EBMER, 1978a: 21, *H. sajoi furcatus*), Azerbaijan (BLÜTHGEN, 1925: 94, *H. furcatus*; 1955: 16), Iran (EBMER, 1978a: 20, *H. tetrazonius*; 21, *H. sajoi furcatus*), southeastern Turkey (WARNCKE, 1984: 312 (*H. tetrazonius galileus*). Also an isolated population in *southern Turkmenistan. The record from Morocco by BLÜTHGEN (1923b: 252) was based on misidentification.

First records: Moldova: Chumai, 1♂. Turkmenistan: Alekseyevka Village near Kushka, 14.viii.1930, leg. A. SHESTAKOV, 1♂.

Halictus (*Monilapis*) *tsingtouensis* STRAND, 1910

Distribution: Southeastern Palaearctic Region: *Altai, *Krasnoyarsk Territory, *Irkutsk, *Chita and *Amur Provinces, Khabarovsk and Primorski Territories of Russia (PESENKO, 1985: 101; EBMER, 1996: 268), eastern China (Heilongjiang, Beijing, Hebei, Shandong, Jiangsu, and Zhejiang Provinces; STRAND, 1910: 181; EBMER, 1978b: 188; 1996: 268; PESENKO, 1985: 101; PESENKO & WU, 1997: 205), Korea (EBMER, 1978c: 308), Japan (Hokkaido and Honshu Islands; PESENKO, 1985: 101; EBMER, 1996: 268).

First records: Altai: 20 km WNW Aktash (left bank of Chuya River), 1130 m, meadow-steppe, 10.viii.1987, leg. Yu. PESENKO, 1♀. Krasnoyarsk Territory: Mazharka (Minussinsk District)), 20.vi.1925, leg. SEREBRENNIKOV, 1♀. Irkutsk Province: Irkutsk, leg. B. YAKOVLEV, 3♀♀. Chita Province: Kalga, 13.vii.1975, leg. D. KASPARYAN, 1♂. Amur Province: Area between Malaya Pera and Bolshoi Ergel Rivers, 14-18.vi.1958, leg. G. ZINOVIEV, 2♀♀; *Klimoutsy Village*, 45 km W *Svobodnyi*, 30-31.*v*.1959, G. ZINOVIEV; 1♀; *Simonovo Village*, 75 km W Svobodnyi, 3-7.vii.1959, G. ZINOVIEV 10♀♀.

Halictus (*Monilapis*) *xanthoprymnus* WARNCKE, 1984

Halictus (*Halictus*) *xanthoprymnus* WARNCKE, 1984: 314, Figs 10, 11. ♂♀. Holotype: ♂, Turkey: Gevria pass (Hakkari il); OLML.

Distribution: Southeastern Turkey.

Material examined: Turkey: Gavaruk Mt., 1♂ (paratype).

The original description by WARNCKE (1984: 314) is incompletely adequate because it includes no comparison with any other species. *H. xanthoprymnus* belongs to the *H. compressus* species-group, members of which possess the following two characters: (1) mandibles broadened in their proximal part; (2) flagellomeres convex and have proximal and distal transverse bands of very short and dense erect hairs on lower side (the last character is shared by the *H. compressus* group with some other groups of the subgenus). *H. xanthoprymnus* is similar to *H. lobatus* EBMER, 1978, known only from the type series from Chalus (Elburs Ridge, northern Iran), in a very strong proximal broadening of the male mandible. *H. lobatus* has been described only from the male; it was studied by me from a paratype deposited in ZISP (see PESENKO, 1985: 84 (key), 96, Figs 11, 25, 66, 107). This broadening in both species is lobe-like, separated from the

distal half of the mandible by a deep emargination; the maximum width of their mandibles is about 1.5 times their width at base. The main differences between these species in males are keyed below.

1 Smaller: body length 9-10 mm. Proximal broadening of mandible in shape of acute triangular lobe. Mediodorsal tassel of gonostylus weakly separated from hairs forming a brush at gonostylar apex directed backward ..... *H. xanthoprymnus* WARNCKE

- Larger: body length 11 mm. Proximal broadening of mandible in shape of rounded lobe. Mediodorsal tassel of gonostylus distinctly separated from hairs forming a brush at gonostylar apex directed backward ..... *H. lobatus* EBMER

Halictus (*Platyhalictus*) *alfkenellus* STRAND, 1909

Distribution: A rare western Palaearctic species considered to be consisting of two subspecies. The most part of the distributional range of the species is occupied by *H. alfkenellus cedens* STRAND, 1909 (= *H. posthumus* BLÜTHGEN, 1925; *H. subalfkenellus* BLÜTHGEN, 1936): Spain, southern France, Greece (EBMER, 1978a: 18), Volgograd Province and *Krasnodar Territory of Russia, western Kazakhstan (PESENKO, 1984c: 45), Asia Minor (BLÜTHGEN, 1936: 284; 1937: 106; 1955: 14; WARNCKE, 1975: 110; EBMER, 1978a: 18), Israel (EBMER, 1978a: 18), Palestine (BLÜTHGEN, 1936: 284; 1955: 14), Lebanon (BLÜTHGEN, 1937: 106; 1955: 14), Azerbaijan (BLÜTHGEN, 1923b: 137; 1937: 106), and Iran (BLÜTHGEN, 1937: 106; EBMER, 1978a: 18; WARNCKE, 1982: 161). The nominotypical subspecies, differing from *H. alfkenellus cedens* in the wider metasoma and widely interrupted posterior hairs bands on the terga, occurs only in Sicily.

First record for Krasnodar Territory (*H. alfkenellus cedens*): Armavir, 1 ♀ (MNB); «Ekaterinodar» [at present Krasnodar], 3 ♂♂.

Halictus (*Platyhalictus*) *determinandus* DALLA TORRE, 1896

Halictus determinatus MORAWITZ, 1876: 217 (key), 233; nec *Halictus determinatus* WALKER, 1871. ♀. Lectotype: ♀, Uzbekistan: Sangu-dzhuman, 30 km SSE Samarkand; designated by PESENKO (1984b: 20); ZMMU.

Halictus determinandus DALLA TORRE, 1896: 60; nom. n. pro *Halictus determinatus* MORAWITZ, 1876.

Halictus (*Platyhalictus*) *ebmeri* PESENKO, 1984c: 36 (key), 45, Figs 7, 8, 35-37, 67-69. ♂. Holotype: ♂, Afghanistan: Lezdi (Hindu Kush Ridge); EBM. **Syn.n.** (see comments below).

Taxonomy: BLÜTHGEN, 1923b: 67 (key); EBMER, 1980: 471 (♂), Fig. 1; PESENKO, 1984c: 36 (key), 40 (key), 42 (♂), Figs 5, 6, 32-34, 64-66.

Distribution: A rare species, inhabiting high lands of Central Asia. Northern Afghanistan (Hindu Kush Ridge; EBMER, 1980: 471), eastern Uzbekistan (MORAWITZ, 1876: 233), western Tajikistan (PESENKO, 1984c: 42), and *Kyrghyzstan.

Material examined (17♂♂, 8♀♀). Afghanistan: Lezdi (Hindu Kush Ridge): 1♂ (holotype of *H. ebmeri*); EBM. Uzbekistan: Sangu-dzhuman, 30 km SSE Samarkand (Zeravshan Ridge), 4♀♀ (lectotype and paralectotypes of *H. determinatus*; ZMMU and ZISP. Tajikistan: Kondara gorge, Varzob River valley (Hissar Ridge), 2♂♂; Kvak locality, 30 km N Dushanbe (Hissar Ridge), 1♂, 1♀; Sangvor River valley (Darvaz Ridge), 3♀♀; Dashti-gurk, 40 km ESE Komsomolabad (Peter the First Ridge), 6♂♂; 15 km E Komsomolabad (Peter the First Ridge); 15 km WSW Karanyk (Alai Ridge), 4♂♂. Kyrghyzstan (first record): Kanysh-kiya, Chatkal River valley (Chatkal Ridge), 1800 m, mountain steppe, 31.viii.1988, leg. Yu. PESENKO, 3♂♂.

H. determinandus was originally described by MORAWITZ (1876: 217, 233; under the name "*Halictus determinatus*") only for females (from eastern Uzbekistan). EBMER (1980: 471) described the male of this species on the basis a single specimen from Hindu Kush Ridge. I have examined this male and considered it as belonging to a close, but another species, later described by me (PESENKO, 1984c: 36, 45) as a new one (*H. ebmeri*), on the following reason. At that time, I had found two males from Kondara gorge (western Tajikistan) in the collection of ZISP, which were caught not far to the type locality and are more similar to the female of *H. determinandus* (especially in the sculpture of the mesoscutum and propodeum) than the male described by EBMER. Basing of these males I described the "true" male of *H. determinandus* (PESENKO, 1984c: 36, 42). Appearance of an additional material on the species (14♂♂ and 4♀♀ from Tajikistan and Kyrghyzstan; see the section "Material examined" above) at ZISP permits to reveal a significant variability of the males in all the characters considered by me earlier as distinguishing *H. determinandus* and *H. ebmeri*, including the body size, punctation of the mesoscutum and scutellum, presence or absence of a shiny stripe along the border between the metapostnotum and lateral surfaces of the propodeum, shape of the posterior median process of the metasomal sternum VIII. This variation has become a basis for ascertainment of *H. ebmeri* as a junior synonym of *H. determinandus*.

Halictus (*Platyhalictus*) *graecus* BLÜTHGEN, 1933

Distribution (mostly after BLÜTHGEN, 1923a: 304; 1923b: 139; "*H. holtzi*", nec *H. holtzi* SCHULZ, 1906 = *H. resurgens* NURSE, 1903). A rare eastern Mediterranean species. Southeastern Europe: Macedonia, *Bulgaria, Greece, and Crimea; southwestern Asia: Cyprus, Asia Minor (WARNCKE, 1975: 110; 1984: 311), Armenia, and Azerbaijan.

First record for Bulgaria: Bevbelisko Rodopica, 1♀ (determined by K. WARNCKE).

Halictus (*Platyhalictus*) *lussinicus* BLÜTHGEN, 1936

Distribution: Croatia (BLÜTHGEN, 1936: 288), *south of European Russia.

First records for Russia: Volgograd Province: Volgograd, 1♂; Daghestan (no locality), 4♂♂.

Halictus (*Platyhalictus*) *minor* MORAWITZ, 1876

Distribution: A common Central Asian species. *Azerbaijan, Afghanistan (EBMER, 1980: 478), northeastern Iran, Kazakhstan (including its European part), Turkmenistan, Uzbekistan, Tajikistan, Kyrghyzstan (PESENKO, 1984c: 41), Altai (PÉREZ, 1903: ccviii), northwestern Pakistan (EBMER, 1984: 320), *northern India, and northern China (Xinjiang Uygur, Nei Mongol, and Ningxia Hui AR, Gansu Province; STRAND, 1909: 36; PESENKO, 1984c: 41; 1984d: 456; PESENKO & WU, 1997: 205).

First records: Azerbaijan: 10 km NE Dzhulfa, 1♂. India: Himachal Pradesh, 4 km S Swarghat, 21.iv.1994, leg. T. GRISWOLD, 1♂ (UUL).

Halictus (*Protohalictus*) *atripes* MORAWITZ, 1893

Distribution: A rare species occurring in mountains of Central Asia. Southern and southeastern Kazakhstan, northern Tajikistan, *Kyrghyzstan, and northwestern China (Xinjiang Uygur AR) (PESENKO, 1984d: 455). Female unknown.

Material examined (7♂♂). Kazakhstan: Dzhambul Province: Kurdai and Kyzyl-aus (Chuluk Tau Ridge), 1♂; Almaty Province, Left Talgar gorge (Zailiiskii Ala Tau Ridge), 1♂; Semipalatinsk Province: Semipalatinsk, 1♂. Eastern Kazakhstan Province, Kyzyl-kiya, 42 km SE Zaisan Town (Saur Ridge), 1♂. Tajikistan: «Seravschan Veschab» [40 km E estuary of Fandarya River, 2000 m], 1♂ (holotype). Kyrghyzstan (first record): Terek-sai (southeastern part of Chatkal Ridge), 2400 m, mountain desert, 17.viii.1985, leg. Yu. PESENKO, 1♂. China: Bogdo-ula Mt. (Bogdo Shan Ridge, E of Urumchi, Xinjiang Uygur AR), 1♂.

Halictus (*Protohalictus*) *bagirensis* BLÜTHGEN, 1936

Distribution: A rare species, inhabiting high lands of Central Asia. Southern Turkmenistan (Kopet Dagh Ridge), Tajikistan (BLÜTHGEN, 1936: 306, 307; PESENKO, 1984d: 477), *Uzbekistan, and northern Iran (Kopet Dagh Ridge; EBMER, 1978a: 12).

First record for Uzbekistan: 30 km SE Denau (Babatagh Ridge), 23.v.1982, leg. S. BELOKOBYLSKIJ, 1♀.

Halictus (*Protohalictus*) *buchariicus* BLÜTHGEN, 1936

Distribution: A rare species known only from mountains of Tajikistan (BLÜTHGEN, 1936: 308; PESENKO, 1984d: 478) and *southeastern Kazakhstan.

Material examined (2♂♂, 5♀♀). Kazakhstan (first record): Karta-bulak gorge, near Almaty, 1000 m, on flowers of *Trifolium*, 29.vi.1969, leg. T. MARIKOVSKAYA, 1♀. Tajikistan: Kurgan-tyube, 1♂ (paralectotype), 1♀ (lectotype); Kyzyl-kala on Vakhsh River; 1♂, 1♀ (paralectotypes, MNB); Gandzhino, 2♀♀.

Main differences from the close *H. takuiricus* BLÜTHGEN, 1936 are keyed for the latter species.

Halictus (*Protohalictus*) *fimbriatus* SMITH, 1853

Halictus fimbriatus SMITH, 1853: 63. ♂. Syntype(s): "Northern India": Simla; lost.
Halictus asperatus BINGHAM, 1898: 123. ♀. Lectotype: ♀, India: Simla; designated by PESENKO (1984b: 19); BML. Synonymy by BLÜTHGEN (1930: 76).

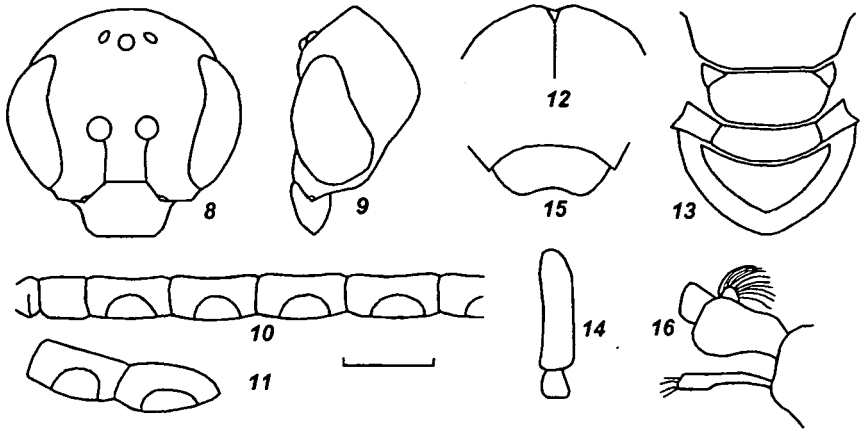
Taxonomy: BLÜTHGEN, 1926b: 673 (redescription); 1930: 76; 1931a: 322, 324 (key to females), 325 (key to males); PESENKO, 1984c: 39 (key to males).

Distribution: A rare, northern Oriental species known only from northern India and *northern Pakistan.

Material examined (3♂♂, 3♀♀). Pakistan (first record): Baluchistan: Hanna, 15 km E Quetta, 24.v.1984, leg. ROZEN, LODHI, and STUPAKOFF, 1♂ ("*H. atripes* MOR., L. PACKER det."; AMNY via L. PACKER). India: Simla, 1♂ (determined by P. BLÜTHGEN, BML via L. PACKER), 1♀ (lectotype of *H. asperatus*, BML); Hazara Distr., Dungagali, 8000 ft, 21-24.v.1915, leg. FLETCHER, 1♂ (from Indian Agr. Res. Inst., in Calcutta via L. PACKER); Uttar Pradesh, Bhatta, 4 km S Mussoorie, 1800 m, 6.v.1990, L. PACKER", 2♀♀ (determined by A. EBMER; PACK, ZISP).

The type of *H. fimbriatus* was lost as long ago as the beginnings of the XIX century (see BLÜTHGEN, 1926b: 673). The original description of this species by SMITH (1853: 63) is too brief and superficial, so it can be identified with certainty to another male from Simla, which was later determined and redescribed by BLÜTHGEN (1926b: 673-675) as *H. fimbriatus*, but it does not contradict the latter male and the BLÜTHGEN's redescription. BLÜTHGEN noticed a similarity of *H. fimbriatus* to *H. rubicundus* (a member of the subgenus *Protohalictus* in the current classification) in the habitus and the shape of the metasoma, but included it in the "*H. tetrazonius* species-group" (subgenus *Monilapis* in the current classification) on the basis of the shape and pubescence of flagellomeres. I have studied the male redescribed by BLÜTHGEN. It is provided with the labels: (1) "Simla, 5. 97" [May 1897, printed], (2) "Col. C.G. NURSE Collection 1920-72" [printed], and (3) "*Hal. fimbriatus* SM. P. BLÜTHGEN det." [by BLÜTHGEN's hand]. The male was strongly destroyed (evidently during dissection of the genitalia, which are put together with the right hind basitarsus into a capsule with glycerine): head and legs missing except for right hind femur and tibia, metasomal sterna V-VIII destroyed, pubescence on terga missing entirely. Nevertheless, the male can be easy identified as a member of the subgenus *Protohalictus* owing to the gonostyli of characteristic structure and other characters. *H. fimbriatus* differs from all other species of this subgenus in the presence of the proximal and distal hair bands on the male flagellomeres, similar to those in members of the subgenus *Acalcaripes*, many species of the subgenera *Monilapis* and *Platyhalictus*, and *H. modernus* MORAWITZ (subgenus *Lampralictus*).

The diagnosis and redescription of the species below are compiled on the basis of the study of the characterized male from Simla and as well two more males and two females listed in the section "Material examined" above. Of course, also the BLÜTHGEN's redescription was taken into consideration, especially in relation to the structure, sculpture, coloration, and pubescence of the head in the male from Simla.



Figs 8-16: *Halictus fimbriatus* SMITH, ♂ (from India: Dungagali): (**8**), head in front view; (**9**), head in lateral view; (**10**), 1st-5th flagellomeres; (**11**), 10-11th flagellomeres; (**12**), anterior part of mesoscutum; (**13**), posterior half of mesosoma in dorsal view; (**14**), hind basitarsus; (**15**), metasomal terga VI and VII; (**16**), upper and lower gonostyli, right, view from outside.

D i a g n o s i s : Among all members of the subgenus *Protohalictus*, the male of *H. fimbriatus* is more similar to that of *H. atripes* in the following characters: body size and habitus; shape of head; length of antenna; relative length of scutellum, metanotum and metapostnotum; shape of metapostnotum; structure of legs, including broadened hind basitarsus; shape of posterior margins of metasomal sterna IV and V; lower gonostylus long and not too narrow; sculpture of body surfaces, excepting sparser punctate mesoscutum and especially scutellum; coloration of body, including dark legs, pubescence of body, including presence of well developed posterior hair on metasomal tergum V and dark long pubescence of terga VI and VII.

H. fimbriatus differs from *H. atripes* in the following characters: clypeus stronger projecting; flagellomeres with shiny hairless rounded areas on lower side (matte entirely in *H. atripes*); mesoscutum denser punctate, less shiny; scutellum denser punctate (0.2-0.8); hind basitarsus slighter broadened and curved; metasomal tergum VII roundly emarginate at topologically posterior margin; lower gonostylus without club-like enlargement in distal part.

Females of *H. fimbriatus* are very similar to males, especially in the sculpture of the mesoscutum and the shape, relative length and sculpture of the metapostnotum, but their metasomal tergum I is more distinctly and densely punctate, the body is smaller (8.5-9.0 mm).

M a l e . S t r u c t u r e : Body length 9.5-10.0 mm. Antenna relatively long, reaching posterior margin of mesosoma. Flagellomeres with shiny bare median rounded areas on lower side, dividing proximal and distal bands of very short dense erect hairs; each band occupying about 1/6 of segment length (bare areas, about 2/3; Figs 10, 11).

Mesoscutum deeply depressed along admedian line, deeply emarginated in middle of anterior margin (Fig. 12). Ratio of lengths of scutellum, metanotum and metapostnotum 4 : 2 : 3. Metapostnotum widely triangular, its posterior margin forming a distinct angle at 120° (Fig. 13). Posterior vertical surface of propodeum without lateral carina, roundly passing onto dorsal and lateral surfaces. deeply and widely roundly depressed medially. Hind basitarsus broadened, nearly parallel-sided, very slightly curved, 4.5 times as long as wide (Fig. 14). Metasoma narrowed toward anterior end. Metasomal terga with narrow depressed posterior areas. Terga II and III slightly depressed in anterior part. Tergum VII roundly emarginate at topologically posterior margin (Fig. 15). Metasomal sternum IV with wide semicircular emargination. Sternum V with narrow deep emargination. Lower gonostylus as long as upper gonostylus, relatively narrow, nearly parallel-sided, only in distal third somewhat broadened (Fig. 16), provided with several short hairs on apex.

S c u l p t u r e : Mesoscutum finely, deeply and densely punctate; its sculpture varying in details (see the section "Variability" below). Metapostnotum granulate or obscurely and finely granuloso-striate, nearly matte, distinctly bordered from lateral and posterior surfaces of propodeum by changes in sculpture; these surfaces on upper part distinctly punctate (28 μm / 0.2-0.3) and shiny. Metasomal tergum I on slanting part polished, distinctly punctate (20-28 μm / 1-2); on dorsal surface finer and denser punctate (15-20 μm / 0.3-0.8), shagreened on interspaces; on posterior area with obscure, microscopically fine punctation, shagreened, nearly matte at magnitude × 2.

C o l o r a t i o n : Coloration of clypeus and labrum varying (see below). Mandibles always black entirely. Flagellum reddish-yellowish-brown on lower side. Legs black, excepting rusty-yellow anterior surface of fore and middle tibiae and yellowish-brown tarsi of all legs. Posterior areas of metasomal terga narrowly and slightly horny-translucent.

P u b e s c e n c e : Metasomal terga I-V with relatively narrow, white posterior hair bands, occupying posterior areas entirely. Terga VI and VII covered with dense pubescence of dark-fuscous hairs, forming a very dense band on posterior area of tergum VI; these hairs short on posterior area and disc of tergum VI; long on tergum VII and on lateral surface of tergum VI. Sternum IV with dense whitish posterior hair band. Sterna V and VI medially covered with long brownish-yellow hairs, on posterior half with very fine, silky, brownish-yellow hairs; sternum V on anterior half and laterally hairless.

V a r i a b i l i t y : The males examined vary in the structure of the head, the coloration of the clypeus and labrum, and in the sculpture of the mesoscutum and metapostnotum as follows.

(1) The male from Simla (India): head 1.06 times as high as wide; clypeus and labrum black; mesoscutum densely regularly punctate of deep and moderately coarse punctures (28-42 μm / 0.2-0.3), on interspaces finely shagreened, nearly shiny; metapostnotum finely obscurely striate, slightly shining.

(2) The male from Dungagali (India) differs from the male from Simla in the following characters: head shorter, as high as wide (Fig. 8), relatively thick; genal area as wide as eye in lateral view to head (Fig. 9); clypeus with dark-yellow band along lower margin; labrum dark-yellow; mesoscutum on disc (except a median longitudinal stripe with sparser punctation) significantly coarser, sparser and irregularly punctate (40-50 μm

/ 0.3-1.0), but on anterior third and laterally same as in the male from Simla above (28-40 µm / 0.2-0.3).

(3) The male from Hanna (Pakistan) is intermediate between two the males above in the development of the yellow pattern on the head (clypeus with a yellow band along lower margin, but labrum dark) and in the sculpture of the mesoscutum (on disc, 35-40 µm / 0.3-0.5). The head is higher (height to width ratio 1.1) than that in the other males; the metapostnotum is densely granulate, without wrinkles.

Halictus (*Protohalictus*) *funerarius* MORAWITZ, 1876

Distribution: A rare species, inhabiting high lands of Central Asia. Southern and southeastern Kazakhstan (PESENKO, 1984d: 474), Uzbekistan (MORAWITZ, 1876: 235; PESENKO, 1984d: 474), Tajikistan (PESENKO, 1984d: 474), western Kyrghyzstan (BLÜTHGEN, 1936: 299, 302), Iran (PESENKO, 1984d: 475), northeastern Afghanistan (EBMER, 1980: 470), and northwestern China (Xinjiang Uygur AR; BLÜTHGEN, 1936: 299).

Material examined (3♂♂, 16♀♀): Iran: Budzhkurt, 4.ix.1928, leg. A.D. MORITZ, 1♀. Kazakhstan: Chimkent Province: Chimgan, 3.v.1959, leg. ROZANOVA, 1♀; Almaty Province: Otar, 6.vi.1969, leg. T. MARIKOVSKAYA, 1♀; 12 km SE Talgar (Zailiiskii Ala Tau Ridge), subalpine zone, 20.vii.1986, leg. Yu. PESENKO, 1♀. Uzbekistan: Sangy-dzhuman, 30 km SSE Samarkand, 4♀♀ (lectotype and paralectotypes of *H. funerarius*); Bashkyzyl-sai (Chatkal Ridge), 6.vi.1989, leg. V. BEIKO, 1♀; Aman-kutan, S of Samarkand, 1500 m, 1.vi.1931, leg. V. GUSSAKOVSKIJ, 1♀; Nanai (Pskem Ridge), 3000 m, 23,v.1963, leg. V. ZASLAVSKII, 1♀. Tajikistan: Artuch (Zeravshan Ridge), 3♀♀; Gafilabad (Hissar Ridge), 19.viii.1940, leg. V. GUSSAKOVSKIJ, 1♀; Kvak locality, 35 km N Dushanbe (Hissar Ridge), 2000 m, 8-16.vi.1937, leg. V. GUSSAKOVSKIJ, 3♀♀; Turkestan Ridge, 1♀; 15 km WSW Karamyk (southern slopes of Alai Ridge), 2700 m, 11.viii.1985, leg. Yu. PESENKO, 2♂♂. Kyrghyzstan: Aktash (Talas Ala Tau Ridge), 1500 m, 1♂ (MNB), 2♀♀ (SCH). China: Khotan Mts. (Xinjiang Uygur AR), 1♀ (MNB).

The study of an additional material on *Halictus funerarius* (especially two males from Karamyk; see above) and as well on *H. turanicus* MORAWITZ permits revealing the closest relation of these species (for differences, see text for the latter species).

Halictus (*Protohalictus*) *georgicus* BLÜTHGEN, 1936

Distribution: A very rare species known only from Asia Minor (BLÜTHGEN, 1936: 305) and Azerbaijan (BLÜTHGEN, 1936: 305; PESENKO, 1984d: 477).

Material examined (2♂♂, 10♀♀). Azerbaijan: "Hellenendorf" [Khanlar, 7 km N Gyandzha], 1♂ (lectotype; NMW), 2♀♀ (paralectotypes; MNB); Gyandzha, 1♂; Ordubad, 2♀♀; Kilyazi (Tazakend), 6♀♀.

Variability: The flagellomeres of the second known male of the species (from Gyandzha; see above) are more similar to those in the Central Asian *H. bagirensis* BLÜTHGEN. The examined females of *H. georgicus* vary in both main diagnostic characters: punctation of mesoscutum and coloration of legs. Only strong differences in

the structure of the male genitalia permit considering *H. georgicus* and *H. bagirensis* separate species, in contrast to the opinion by WARNCKE (1982).

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: *eastern Kazakhstan; southern Siberia and Russian Far East from Altai to Sakhalin and southern Kuril Islands (PESENKO, 1984d: 471); northern China (Xinjiang Uygur and Nei Mongol AR, Gansu, Jilin, Liaoning, and Heilongjiang Provinces; BLÜTHGEN, 1934b: 5; EBMER, 1978b: 187; 1996: 268; PESENKO, 1984d: 456; PESENKO & WU, 1997: 203), central Mongolia (PESENKO, 1984d: 456). Another subspecies, *H. hedini hebeiensis* PESENKO et WU, 1997, differing from the nominotypical one in rusty-yellow posterior tibia and tarsus, is known only in the subtropical zone of eastern China (Hebei Province and Beijing Municipality).

First records (of *H. hedini hedini*). Kazakhstan: Eastern Kazakhstan Province: Kedrovka River, 10 km S Leninogorsk (Ulbinskii Ridge), 1500 m, 18.viii.1986, leg. Yu. PESENKO, 4♂♂; Severnaya River, 20 km WNW Serebryansk (Ulbinskii Ridge), 700 m, 22.viii.1986, leg. Yu. PESENKO, 1♂; Smetaninskii Belok Mt., 15 km SSE Leninogorsk, 19.viii.1986, leg. Yu. PESENKO, 1♀; Chernovaya on Bukhtarma River, 7.viii.1897, leg. SILANTYEV, 2♂♂. Krasnoyarsk Territory (south): Ezagash on Enisei River, 31.v.1897, 1♀.

Variability: In a single female from eastern Kazakhstan and in some of females from Amur Province, distal third of middle tibia, hind tibia entirely, middle and hind tarsi rusty-yellow, similar to those in *H. rubicundus*, but sculpture of mesoscutum and metasoma usual for *H. hedini*.

Halictus (*Protohalictus*) *nuristanicus* PESENKO, sp. n.

Halictus submodernus sensu EBMER, 1984: 314, Figs 1, 2 (♂); nec BLÜTHGEN, 1936.

Holotype: ♂, "O.-Afghanistan, Nuristan, Bashyultal, Achmene, Dewane, 2700 m, 28.vii.1952, leg. KLAPPERICH", "*Halictus submodernus* BLÜTHGEN, A. EBMER det., ♂"; HMB.

Female unknown.

Distribution: Eastern Afghanistan.

Diagnosis: In the male, the new species differs from all other species of the subgenus in the very wide and thick head and very sparse and irregularly punctate clypeus (0.1-4.0). It also possesses the following diagnostic characters: clypeus on lower half, labrum entirely and mandible in middle yellow; femora and tibiae rusty-brown, with dark longitudinal spots; tarsi brownish-yellow; metasomal sternum V deeply emarginate; lower gonostylus nearly as long as upper one, club-shaped; its width in distal third 3 times its width in proximal part. In the structure of the lower gonostylus, it is similar to *H. icarus* EBMER and *H. atripes* MORAWITZ. For more detail and figures see description of the male of "*Halictus submodernus*" by EBMER (1984: 314).

***Halictus* (*Protohalictus*) *rubicundus* (CHRIST, 1791)**

(= *H. nidulans* WALCKENAER, 1817; *H. lerouxi* LEPELETIER, 1841; *H. quadrifasciatus* SMITH, 1870; *H. lerouxi* var. *ruborum* COCKERELL, 1898; *H. lerouxii*: LOVELL, 1908, justified emendation; *H. rubicundus* var. *nesiotis* PERKINS, 1922; *H. rubicundus* var. *laticincta* BLÜTHGEN, 1923; *H. rubicundus* var. *mongolensis* BLÜTHGEN, 1936; *H. lupinelli* COCKERELL, 1939; *H. frater* PESENKO, 1984).

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

Comment: on the taxonomic status of *H. rubicundus* f. *laticinctus* and *H. rubicundus* f. *mongolensis*. These forms of *H. rubicundus* are similar to each other, both differing from the typical form in paler legs, wider posterior hair bands on the metasomal terga and partly horny-yellow posterior areas of the terga. Originally *H. r.* f. *laticinctus* was recorded by BLÜTHGEN (1923b: 135) from southwestern Europe and "Turkestan", later it was found from Morocco (EBMER, 1976: 217), southeastern Kazakhstan, Kyrghyzstan, and western Pamirs (PESENKO, 1984d: 467). Originally *H. r.* f. *mongolensis* was described by BLÜTHGEN (1936: 302) from the females caught in northern Mongolia and northern Kazakhstan (Borovoe in Kokchetav Province). EBMER, 1978b: 188) described the male of *H. r.* f. *mongolensis* from Harbin (northeastern China). Later *H. r.* f. *mongolensis* was recorded from a number of localities in Mongolia, southeastern Kazakhstan, Altai, Buryatia, Chita and Amur Provinces, Khabarovsk and Primorskii Territories of Russia (PESENKO, 1984d: 467).

EBMER (1976: 217, 1978b: 188, 1982) has considered both *H. r.* f. *laticinctus* and *H. r.* f. *mongolensis* as subspecies of *H. rubicundus*, and indicated the elongate lower gonostylus of the male as the lone diagnostic character of *H. r.* f. *mongolensis*. This opinion contradicts the following facts. First, known collection localities of *H. r.* f. *laticinctus* and *H. r.* f. *mongolensis* in Asia show partly overlapping of these forms with each other and complete overlapping with the typical form. Second, there are numerous intermediate individuals of both sexes in nearly all parts of the distributional ranges of *H. r.* f. *laticinctus* and *H. r.* f. *mongolensis*, e.g., in Mongolia, Buryatia, and Khabarovsk Territory of Russia. These are intermediate both in separate characters of the body coloration and pubescence and as well in a set of characters. Third, the length of the lower gonostylus in males, taken as a single character for distinguishing *H. r.* f. *mongolensis* from the typical form, can not give a satisfactory result.

Preparation of the genitalia in almost 200 males of *H. rubicundus* from all its distributional range in the Palaearctic Region, made by me, has shown as follows. (1) Males with elongated lower gonostyli are present in many local populations, including those inhabiting far from the areas, where *H. r.* f. *mongolensis* and *H. r.* f. *laticinctus* occur: e.g., in Yaroslavl (Berditsyno) and Belgorod (Borisovka) Provinces of Russia, in Western Kazakhstan Province (Kharkin). (2) Only about 70 % of males examined from Mongolia and about 50 %, from the south of the Russian Far East (Amur Province, Khabarovsk and Primorskii Territories) possess elongate lower gonostyli. The variation of the relative length of the lower gonostyli in males from these populations is independent on the degree of development of the pale coloration on the legs and as well on the width of the posterior hair bands on the metasomal terga. (3) The enlargement of the upper gonostyli frequently relates to only one of the gonostyli (right or left).

From the evolutionary point of view, such a high variation of the lower gonostylus in *H. rubicundus* is explained by that it is very short, usually not producing from the gonocoxite corium, sometimes lost completely, especially frequently in the North American populations (personal communication by Dr. L. PACKER). Being too short, it rather has no functional role (e.g., during copulation) and is a rudiment. Its variation has no adaptive significance and can not used as a diagnostic character.

Thus, the variation pattern of all the characters taken for distinguishing *H. r.* f. *mongolensis*, *H. r.* f. *laticinctus*, and the typical one permits to conclude that *H. r.* f. *mongolensis* and *H. r.* f. *laticinctus* should be considered neither separate species (according PESENKO, 1984b: 23), nor subspecies of *H. rubicundus* (according EBMER, 1976: 217, 1978b: 188, 1982), but infraspecific forms having no taxonomic status.

Halictus (*Protohalictus*) *stachii* BLÜTHGEN, 1923

Halictus stachii BLÜTHGEN, 1923a: 321. ♀. Lectotype: ♀, Uzbekistan: «Ferghana (Kara-Gary)»; designated here; IZK. The references to diagnoses are given in the section "Taxonomy" below.

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

Distribution: A rare species, inhabiting high lands of Central Asia. Uzbekistan (BLÜTHGEN, 1923a: 321), Tajikistan (BLÜTHGEN, 1936: 311), *Kyrghyzstan, and central Mongolia (EBMER, 1982: 201; PESENKO, 1984d: 455).

First records for Kyrghyzstan: Bash-kuunda gorge, 10 km N Kaiyrma, 1400 m, montane steppe, on flowers of *Perovskia*, 14.viii.1988, leg. Yu. PESENKO, 1♂; 11 km WSW Daraut-korgon, 2700 m, montane steppe, 13.viii.1985, leg. Yu. PESENKO, 6♂♂; Uch-debe, 15 km SSW Sufi-kurgan, 2500 m, dry gorge, 23.viii.1985, leg. Yu. PESENKO, 7♂♂.

Halictus (*Protohalictus*) *takuiricus* BLÜTHGEN, 1936

Halictus takuiricus BLÜTHGEN, 1936: 309. ♀. Holotype: ♀, Kyrghyzstan: "Alexander Gebirge: Takuir-Ter" [Takyr-Ter Mt. (Bishkek Province, Kirghiz Ridge)]; ZISP; examined.

?*Halictus takuiricus* ssp. *sefidicus* BLÜTHGEN, 1936: 310. ♀. Holotype: ♀, Iran: «K[uh-i-] Sefid»; lost. Synonymy by PESENKO (1984a: 346).

Halictus dunganicus BLÜTHGEN, 1936: 310. ♀. Holotype: ♀, Kyrghyzstan: Naryn; MNB; examined. Synonymy by PESENKO (1984d: 472).

Halictus (*Halictus*) *pseudotakuiricus* FAN, 1990: 92 (key), 93 (in Chinese), 97 (in English), Fig. 1. ♀. Holotype: ♀, China: Zada (Xizang Province); IZB; examined. Synonymy by PESENKO & WU (1997: 203).

Halictus (*Halictus*) *zadaensis* FAN, 1990: 92 (key), 94 (in Chinese), 97 (in English), Fig. 2. ♀. Holotype: ♀, China: Zada (Xizang Province); IZB; examined. Synonymy by PESENKO & WU (1997: 203).

Taxonomy: EBMER, 1974: 190; PESENKO, 1984d: 464 (key), 472.

Distribution: A rare species, inhabiting high lands of Central Asia. Eastern Afghanistan (EBMER, 1974: 190), southwestern Iran (BLÜTHGEN, 1936: 310),

southeastern Turkmenistan, Tajikistan, southeastern Kazakhstan (PESENKO, 1984d: 472), Kyrghyzstan (BLÜTHGEN, 1936: 310; PESENKO, 1984d: 472), and northwestern China (Xinjiang Uygur AR and Xizang Province; FAN, 1990: 93, 94; PESENKO & WU, 1997: 203).

Material examined (11♂♂, 23♀♀). Kazakhstan: Almaty Province: Boguty and Chigeldy (eastern slopes of Zailiiskii Ala Tau Ridge), Karta-bulak near Almaty (northern slopes of Zailiiskii Ala Tau Ridge); Dzhambul Province: Karaspe (Chuluk Tau Ridge); Semipalatinsk Province (first record): 30 km NE Blagodatnyi (Tarbagatai Ridge). Turkmenistan: Kugitang Tau Ridge. Tajikistan: Artuch (Zeravshan Ridge), Anzob pass and Kondara gorge (Hissar Ridge). Kyrghyzstan: Takyr-Ter Mt. (holotype of *H. takuiricus*), Naryn (holotype of *H. dunganicus*; MNB), Barskon River, Terek, 30 km SSE Baetovo, Dzaman Too Ridge, Kara-kudzhur gorge (10 km E Sary-bulak, 1600 m, 15-16.viii.1988, leg. Yu. PESENKO, 11♂♂, 2♀♀). China: Xizang Province (holotypes of *H. pseudotakuiricus* and *H. zadaensis*; IZB) and Xinjiang Uygur AR.

The study of 11 males, collected together with 2 females in Sary-bulak (Kyrghyzstan; see above) has given the possibility to described of the hitherto unknown male of the species.

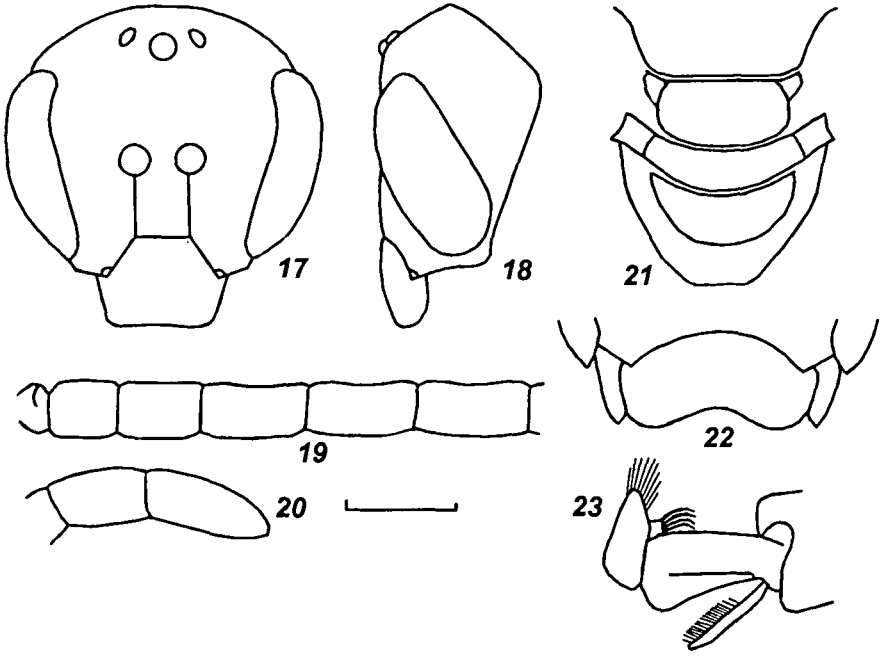
Diagnosis: Among all species of the subgenus *Protohalictus*, *H. takuiricus* is most close to *H. bucharicus* BLÜTHGEN (see above). These species are similar to each other in many characters, but first of all in the following ones: tibiae and tarsi (in males also femora) rusty-yellow; pubescence of head and mesosoma rusty-orange (in males, also pubescence of metasomal tergum VI laterally and tergum VII entirely, in females, tergum V around bare longitudinal stripe; such a coloration of pubescence shared by only these species); mesoscutum depressed along admedian line and emarginate at anterior margin (these depression and emargination slight in small individuals of *H. takuiricus*). Differences between *H. takuiricus* and *H. bucharicus* in both sexes are listed in a key below.

1 Both sexes: body wider and, in average, larger; length 11.0-12.5 mm; metapostnotum 1.1-1.3 times as long as metanotum (Fig. 21), granulate, with obscure striae (in males) or articulate-wrinkled (in females); wings infuscate, yellowish or brownish-yellow. Male: lower gonostylus parallel-sided, straight, along nearly two thirds of its length on one side provided with a row of long hairs, perpendicular to the gonostylar body (Fig. 23). Female: mesoscutum coarser and denser punctate (0.2-0.6, occasionally 1.0), finely shagreened on interspaces, slightly shining or nearly matte ..... *H. takuiricus* BLÜTHGEN

- Both sexes: body narrower and, in average, smaller; length 10.5-11.0 mm; metapostnotum twice as long as metanotum, finely and sparsely strigate; wings nearly hyaline or slightly yellowish. Male: lower gonostylus ribbon-like curved, narrowed in distal part, hairless. Female: mesoscutum finer and sparser punctate (on disc interspaces as wide as puncture diameters or wider), polished on interspaces, shiny ..... *H. bucharicus* BLÜTHGEN

Male (nov.). Structure: Body length 11-12 mm. Head rounded in front view; as high as wide or somewhat higher that wide (Fig. 17). Clypeus projecting below eyes by 2/3 or 3/4. Vertex flattened, at posterior margin narrowly rounded, rounded in front view to head. Head relatively thick, genal area somewhat wider than eye width in lateral view to head (Fig. 18). Antenna relatively long, reaching posterior end of mesosoma. 1st flagellomere 0.75 times as long as 2nd one, 0.65 times as long as 3rd one; 3rd-10th flagellomeres twice as long as wide (Figs 19, 20). Mesoscutum depressed along admedian line and emarginate at anterior margin (these depression and emargination

slight in smaller individuals). Metapostnotum semi-lunar, short, 1.1-1.2 times as long as metanotum (Fig. 21), flattened or slightly transversely depressed at anterior margin. Legs usual; hind basi tarsus parallel-sided, narrow, 5 times as long as wide.



Figs 17-23: *Halictus takuiricus* BLÜTHGEN, ♂ (from Kyrghyzstan: Sary-bulak): (**17**) head in front view; (**18**) head in lateral view; (**19**) 1st-5th flagellomeres; (**20**) 10-11th flagellomeres; (**21**) posterior half of mesosoma in dorsal view; (**22**) metasomal sterna IV and V; (**23**) upper and lower gonostyli, right, view from outside.

Metasoma elongate elliptic, with maximum wide in posterior third (at level of segment IV). Posterior areas of metasomal terga not separated from discs by step. Tergum VII straight along topologically posterior margin. Metasomal sternum IV widely and deeply roundly emarginate (similar to that in other species of the subgenus), along posterior margin with a deep narrow groove. Sternum V deeply roundly emarginate (Fig. 22). Sternum VI with a shallow pit in posterior half. Genital capsule and upper gonostylus of typical structure for the subgenus. Lower gonostylus narrow, parallel-sided, straight, 0.75 as long as upper gonostylus, along nearly two thirds of its length on one side provided with a row of long hairs, perpendicular to gonostylar body (Fig. 23), similar to those in *H. stachii* BLÜTHGEN.

S c u l p t u r e : Clypeus regularly and restively dense punctate by elongate punctures (30-40 µm / 0.2-0.7), polished on interspaces, shiny. Frons distinctly and densely punctate (25-30 µm / 0.2-0.4), shagreened on interspaces, matte. Mesoscutum on

disc relatively sparse punctate (25-30 µm / 0.3-1.0, in middle to 1.5), polished on interspaces, shiny. Mes- and metepisterna coarsely alveolate-rugose, matte. Metapostnotum coarsely granulate, with obscure striae. Lateral and posterior vertical surfaces of propodeum at borders with metapostnotum distinctly punctate (20 µm / 0.1-0.3), slightly shining. Dorsal surface of metasomal tergum I regularly and moderately densely punctate by deep punctures (15 µm / from 0.3-0.6 to 0.5-1.0), shiny or slightly shiny. Subsequent terga with similar, but obscurer punctation, slighter shiny.

Coloration: Body pitchy black, with a slight oil lustre. Clypeus on lower third and labrum yellow. Mandibles black, without pale spot. Flagellum dark-fuscous or black entirely. Legs with a rich pale pattern: femora (except proximal third of fore femur), tibiae and tarsi of all legs rusty-yellow. Wings infuscate, yellowish or brownish-yellow; veins and pterostigma brownish-yellow. Posterior areas of metasomal terga dark, not translucent.

Pubescence: Head, dorsal surface of mesosoma and metasomal terga I-III covered with rusty-orange hairs (in fresh specimens); sides of mesosoma in whitish hairs; legs in white hairs; brush on inner side of hind basitarsus goldish. Flagellomeres matte entirely, throughout covered with microscopically fine short setae. Metasomal terga II and III without anterior band or spots. Posterior hair bands on terga II-IV narrow, about 1/5 of tergal length, only band on tergum I narrowed medially; tergum V only with tracts of such a band. Terga IV and V on discs entirely, tergum VI in middle covered with short black erect hairs. Tergum VI laterally and tergum VII entirely with long rusty-orange hairs.

Halictus (*Protohalictus*) *turanicus* MORAWITZ, 1893

Distribution: A rare species known only from five males from mountains of Tajikistan and *Kyrghyzstan.

Material examined (5♂♂). Tajikistan: Takfan (Zeravshan Ridge), 1♂ (holotype); Kvak locality (Hissar Ridge), 35 km N Stalinobad [Dushanbe], 2000 m, 21.vii-17.viii.1937, leg. V. GUSSAKOVSKIJ, 3♂♂. *Kyrghyzstan (first record): Karamyk pass, Alai Ridge, 3100 m, 13.viii.1985, leg. Yu. PESENKO, 1♂.

Hitherto the species was known only from the holotype (northwestern Tajikistan). The synonymy of the species with *H. stachii* BLÜTHGEN, published by EBMER (1982) on the basis of an assumption by BLÜTHGEN (1936), is wrong.

Diagnosis: The study of an additional material on males of *H. turanicus* and *H. funerarius* MORAWITZ (see above) permits revealing the closest relation of these species. Males of these species differ from those of all other species of the subgenus *Protohalictus* in the following characters: metasomal terga VI and VII with long dark-fuscous or black hairs (in *H. turanicus*, partly); sternum VI with a deep median pit bordered by dense fur-like pubescence: Males of *H. turanicus* and *H. funerarius* also have in common possession a set characters, which being taken separately are shared by some other members of the subgenus: mandibles black, tarsi and most part of tibiae of all legs yellow, metasomal terga II and III without anterior hair bands or spots; sternum V deeply roundly emarginate; lower gonostylus narrow and long, not broadened in distal

part. The differences between males of *H. turanicus* and *H. funerarius* are listed in a key below:

1 Body and legs covered with pale, mostly whitish hairs (except metasomal terga VI and VII); brush on inner surface of hind basitarsus goldish. Wings hyaline; veins and pterostigma brownish-yellow. Posterior hair bands of metasomal terga II-IV wide, about 1/3 of tergal length, at least laterally. Metasomal sternum IV with a narrow and deep groove along posterior margin. Posterior median process of sternum VII widely truncate. Lower gonostylus parallel-sided, 0.75 times as long as upper gonostylus ..... *H. turanicus* MORAWITZ

- Upper half of frons, vertex, dorsal surface of mesosoma and legs, including brush on inner surface of hind basitarsus, dark-fuscous or black, at least on most part. Wings strongly infuscate, brownish; veins and pterostigma dark-fuscous or black. Posterior hair bands of terga II-IV narrow, about 1/6 of tergal length. Sternum IV with a wide depressed semi-lunar area before posterior margin. Posterior median process of sternum VII pointed. Lower gonostylus slightly broadened before apex, nearly as long as upper gonostylus ..... *H. funerarius* MORAWITZ

Halictus (*Tytthalictus*) *asperulus* PÉREZ, 1895

(= *Halictus rugosulus* PÉREZ, 1895; nec *Hylaeus rugosulus* SCHENCK, 1853).

Distribution: Southern Europe from Spain (SUÁREZ, 1972: 9) as far in the east as the Ukraine (BLÜTHGEN, 1936: 290; 1955: 14; EBMER, 1975: 46; 1979: 120; WARNCKE, 1973: 282), Rostov and Volgograd Provinces, and *Krasnodar Territory of Russia (PESENKO, 1986: 630), to Austria (EBMER, 1999: 104) in the north; southwestern Asia: Israel, Cyprus, Asia Minor (BLÜTHGEN, 1955: 14; WARNCKE, 1975: 108; EBMER, 1975: 46), Syria (BLÜTHGEN, 1955: 14; EBMER, 1975: 46), *Georgia, Armenia (BLÜTHGEN, 1955: 14), and *Azerbaijan, and Iran (BLÜTHGEN, 1955: 14; WARNCKE, 1982: 156).

First records: Krasnodar Territory of Russia: Lazorevskoe. Georgia: Pantishar canyon, Tbilis. Azerbaijan: Bilav, Dzhulfa, Garkent, Gosmolyan, Ismaily, Lalakeran, Lenkoran, Lerik, Mardakert, Nakhichevan, Ordubad, Shish-tepe, Zuvant (Shamkor).

Halictus (*Tytthalictus*) *constrictus* SMITH, 1853

(= *Halictus paris* BINGHAM, 1908).

Distribution: A northern Oriental species. *Pakistan (Northwest Frontier Province), northern India (SMITH, 1853: 63; BINGHAM, 1908: 361; BLÜTHGEN, 1926b: 675; 1928: 349; EBMER, 1975: 44; 1984: 321), and Nepal (EBMER, 1975: 44).

Material examined (8♂♂, 12♀♀). Pakistan (first record; all material from Northwest Frontier Province): Murree, 18.v.1984, leg. J. ROZEN, 2♂♂ (AMNY, ZISP); Hazara District, 21 km W Besham, 27.iv.1994, leg. T. GRISWOLD, 4♀♀ (1♀ on flowers of *Berberis*; UUL, ZISP); Hazara District, Boggar, on flowers of rape, 26.iv.1994, leg. T. GRISWOLD, 2♀♀ (UUL, ZISP); Swat District, Shangla Ps., on flowers of apple, 27.iv.1994, leg. T. GRISWOLD, 4♀♀ (UUL, ZISP). India: Simla, 2♂♂ (1♂, lectotype of *H. constrictus*, BML; 1♂, BML via Dr. L. PACKER); Jammu Inshan (Kashmir), 1♀ (EBM); Mussoorie, 1♂ (IZK); Uttar Pradesh, Mussoorie, 2000 m, 10.v.1990, leg. L. PACKER, 2♂♂, 1♀ (determined by A. EBMER; PACK, ZISP); Himachal Pradesh, Swarghat, 21.iv.1994, leg. T. GRISWOLD, 2♂♂ (UUL).

V a r i a b i l i t y : All the males listed above differ from the lectotype in the narrower malar area, straight hind basitarsus, slighter emarginate metasomal sternum IV; nearly straight sternum V at posterior margin; inconspicuous pubescence on both these sterna.

Halictus (*Tytthalictus*) *palustris* MORAWITZ, 1876

Halictus palustris MORAWITZ, 1876: 217 (key), 234. ♀. Lectotype: ♀, Tajikistan: Iskander-kul (Hissar Ridge); designated by WARNCKE (1982: 147); ZMMU.

Halictus pseudomaculatus BLÜTHGEN, 1925: 92. ♀. Lectotype: ♀, Kyrghyzstan: Osh; designated by PESENKO (1984b: 25); NMW. Synonymy by BLÜTHGEN (1931b: 214).

Halictus (*Tytthalictus*) *marikovskayae* PESENKO, 1986: 621 (key), 629, Figs 15, 16. ♀. Holotype: ♀, Kazakhstan: Almaty; ZISP. Synonymy by PESENKO (2004: 100).

Halictus (*Halictus*) *frostus* FAN, 1990: 92 (key), 93 (key), 95 (in Chinese), 97 (in English), Figs 3-8. ♂. Holotype: ♂, China Zhaosu (Xinjiang Uygur AR); IZB; examined. Synonymy by PESENKO & WU (1997: 203).

T a x o n o m y : BLÜTHGEN, 1923b: 71 (key), 136; 1931b: 214; 1936: 291 (♂, *H. pseudomaculatus*), 292 (♂, *H. palustris*), Fig. 10 (*H. palustris*); EBMER, 1975: 43, 44, 48 (key; *H. palustris* and *H. pseudomaculatus*); WARNCKE, 1982: 147; 1984: 310 (*H. maculatus palustris*); PESENKO, 1986: 621 (key), 623 (key), 625 (key), 628, Figs 11-14, 31-33, 34, 47, 48, 50, 65-70, 79, 80, 83 (*H. palustris* and *H. pseudomaculatus*); 2004: 100; PESENKO & WU, 1997: 203.

D i s t r i b u t i o n : A relatively common species, inhabiting mountains of Central Asia. Southern and southeastern Kazakhstan, Uzbekistan, Tajikistan, Kyrghyzstan (PESENKO, 1986: 628, including data on *H. pseudomaculatus*), and northwestern China (Xinjiang Uygur AR; FAN, 1990: 95, *H. frostus*; PESENKO & WU, 1997: 203).

V a r i a b i l i t y : The analysis below is based on examination of more than 200 specimens. The species shows high infrapopulation variability in many characters, including those used for distinguishing other species of the genus. Moreover, the variation of the following important characters is bimodal. In males: coloration of head and mesosoma fuscous-black / black with grey tint, yellow spot on mandibles present / absent, part of clypeus situated below eyes 1/2-3/5 or 3/4 of it height; pubescence on discs of metasomal terga I-IV short and sparse / relatively long and dense, anterior hair bands on terga II and III present / absent; posterior median process of sternum VII rounded / pointed; distal lobe of gonostylus 2.5 times / 4 times as wide as proximal part of gonostylus. In females: hind tibia rusty-yellow entirely / only on distal third; posterior area of metasomal tergum I distinctly finely punctate and polished on interspaces / obscurely punctate and shagreened. The differences above have looked to be so much correlated that they were a basis for me earlier (PESENKO, 1986) to consider the individuals examined as belonging to two, almost entirely sympatric, but separate species: *H. pseudomaculatus* (with a set of the 1st alternative state of characters listed above) and *H. palustris* (with a set of the 2nd alternatives). However, in this paper I have noticed the availability of few intermediate individuals in separate characters. The recent study of an additional material (mostly from Kyrghyzstan) and the holotype of *H. frostus* FAN, which is an intermediate male between *H. pseudomaculatus* и *H. palustris* in most

of characters, has permitted to consider the names of these three nominal species as synonyms (PESENKO & WU, 1997: 203). Later, I have also ascertained *H. marikovskayae* PESENKO to be a junior synonym of *H. palustris* (PESENKO, 2004: 100). Females of *H. marikovskayae* differ from the typical *H. palustris* in the whitish or yellowish-white pubescence of the head and mesosoma, sparser punctation of the mesoscutum, and dark legs; in view of wider understanding of *H. palustris* these differences should be considered infrapopulation ones.

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Neue *Andrena*-Arten aus der Paläarktis (Hymenoptera: Apidae: Andreninae)

W. GRÜNWALDT (†), A.Z. OSYTSHNJUK (†) & E. SCHEUCHL

Abstract

Andrena (*Ulandrena*) *heinrichi* GRÜNWALDT sp.n. from Turkey, *Andrena* (*Leucandrena*) *mistrensis* GRÜNWALDT sp.n. from Greece, *Andrena* (*Pallandrena*) *korbella* GRÜNWALDT sp.n. from Armenia, *Andrena* (*Poecilandrena*) *neovirida* GRÜNWALDT sp.n. and *Andrena* (*Poecilandrena*) *olympica* GRÜNWALDT sp.n. from Greece, *Andrena* (*Poecilandrena*) *ellinorae* GRÜNWALDT & OSYTSHNJUK sp.n. from Tadjikistan and Kazhakstan, *Andrena* (*Tarsandrena*) *sarydzhasi* OSYTSHNJUK sp.n. from Kirgisia, *Andrena* (*Andrena*) *orchidea* SCHEUCHL, sp.n., *Andrena* (*Andrena*) *solutiscopa* SCHEUCHL sp.n., *Andrena* (*Euandrena*) *euphorbiacea* SCHEUCHL spec. nov. from southwestern China and *Andrena* (*Euandrena*) *humlaensis* SCHEUCHL sp.n. from Nepal are described as new. The most important diagnostic characters are illustrated.

Einleitung

von E. SCHEUCHL

Kurz vor seinem Tod am 12. August 2003 übergab mir Dr. W. GRÜNWALDT ein Manuskript mit den Beschreibungen von sieben bisher unbekannten *Andrena*-Arten mit der Bitte, es zu veröffentlichen. Die Beschreibung einer Art stammt von Frau A. Z.