

Records of *Hylaeus* Bees (Hymenoptera: Colletidae) from the Korean Peninsula and Jeju Island¹⁾

Shuichi Ikudome²⁾

¹⁾ Part of this research was carried out in collaboration with the Department of Zoology of the Hungarian Natural History Museum, H-1088 Budapest, Baross utca 13, Hungary.

²⁾ The Institute of Minami-kyushu Regional Science, Kagoshima Women's College, Kourai-cho 6-9, Kagoshima, 890-8565 Japan

Abstract. From the Korean Peninsula, 13 species from 5 subgenera of the genus *Hylaeus* are recorded, of which 10 species, *H. aborigensis*, *H. cardioscapus*, *H. oehlkei*, *H. macilentus*, *H. pfankuchi*, *H. globulus*, *H. matsumurai*, *H. pectoralis*, *H. nigrocuneatus* and *H. confusus* are new to this area. Thus, a total of 15 *Hylaeus* species in 5 subgenera have now been documented from the Korean Peninsula. And from Jeju Island, two species, *H. globulus* and *H. transversalis*, are recorded for the first time.

Key words: bees, *Hylaeus*, new records, taxonomy, distribution, Korean Peninsula, Jeju Island.

Introduction

The Korean Peninsula and Jeju Island are located in the easternmost part of the Eurasian continent, geographically close to the Japanese archipelago. The Japanese insect fauna is zoogeographically more or less influenced by the continent. In this case, the Korean Peninsula is one of the routes through which the species come from the continent. Therefore, it seems important to elucidate the insect fauna of the Korean Peninsula to understand the composition of the Japanese insect fauna. However, little information is yet available on the *Hylaeus* fauna in this area.

As far as the author knows, Kim (1980) first described a species of the genus *Hylaeus* from Korea, *H. perforatus*. Subsequently, Ikudome (1989) reported two more species, *H. paulus* and *H. nippon* (= *H. transversalis*; synonymized by Osytshnjuk & Romankova, 1995) from South Korea. Also from there, Chen & Xu (2012) described three new species, *H. jirisanensis*, *H. koreaensis* and *H. dathei* (= *H. transversalis*; synonymized by Dathe, 2015).

This time 235 specimens of *Hylaeus* bees from the Korean Peninsula and Jeju Island were examined. The results are reported in this paper.

Materials and Methods

This study deals with material from four expeditions. One is a collection from the Hungarian Natural History Museum from North Korea, the others are collections from three Japanese research institutes, originating from South Korea. The abbreviations used in the text are as follows:

BKWC: Laboratory of Biology, Kagoshima Women's College.

ELHU: Entomological Laboratory, Faculty of Agriculture, Hokkaido University.

ELKU: Entomological Laboratory, Faculty of Agriculture, Kyushu University.

HNHM: Department of Zoology, Hungarian Natural History Museum, Budapest.

The specimens from North Korea examined here were collected by HNHM researchers in August and

September 1971, July and August 1975, and July 1977, at the invitation and with the permission of the authorities (Democratic People's Republic of Korea), They are all deposited in the collection of the HNHM. In July 2018, the author surveyed wild bees in South Korea with the support of the National Institute of Ecology (Republic of Korea). The specimens from BKWC, ELHU and ELKU originating from South Korea are jointly deposited in the ELKU collection.

Taxonomy and Distribution

Hylaeus (Hylaeus) aborigensis Dathe, 1994

Hylaeus aborigensis Dathe, 1994: 442.

Prosopis chasanensis Romankova (in Osytshnjuk & Romankova), 1995: 486

Hylaeus chasanensis negoroi Ikudome, 2004: 1-5.

Specimen examined. 1♂: Prov. Ryang-gang, river Karim, 10 km NEE from Bochonbe, 1100 m, 27. Jul. 1975, J. Papp et A. Vojnits leg., No. 295 [HNHM].

Distribution. Asian part of Russia, Mongolia, Japan (Honshu: Toyama Pref.), and **new to the Korean Peninsula.**

Hylaeus (Hylaeus) cardioscapus Cockerell, 1924

Hylaeus cardioscapus Cockerell, 1924a: 276.

Prosopis vallei Niemelä, 1947: 79.

Prosopis cardioscapus Gussakovskij, 1932: 64.

Specimens examined. 2♂♂: Prov. Ryang-gang, Chann-Pay, Plateau, 24 km NW from Sam-zi-yan, road to Mt. Pektsan, 2000 m, 24. Jul. 1975, J. Papp et A. Vojnits leg., No. 281 [HNHM]. 2♂♂: Prov. Ryang-gang, river Karim, 10 km NEE from Bochonbe, 1100 m, 27. Jul. 1975, J. Papp et A. Vojnits leg., No. 295 [HNHM]. 1♂: Prov. Ryang-gang, Plateau, Chann-Pay, Sam-zi-yan, 1600 m, 25. Aug. 1971, S. Horvatovich et J. Papp leg., No. 197 [HNHM].

Distribution. Transpalaearctic-eurosiberian species: Eastern part: Russia (Primorskiy Terr., Khabarovsk Terr., Sakhalin, Kamchatskiy Terr., Magadan Prov.) and **new to the Korean Peninsula.**

Hylaeus (Hylaeus) oehlkei Dathe, 2010

Hylaeus oehlkei Dathe, 2010: 55

Specimens examined. 5♂♂: Prov. Ryang-gang, river Karim, 10 km NEE from Bochonbe, 1100 m, 27. Jul. 1975, J. Papp et A. Vojnits leg., No. 295 [HNHM]. 1♀: Prov. South Pyongan, De-sang san, 12 km NE from Pyongyang, 7. Aug. 1971, S. Horvatovich et J. Papp leg., No. 146 [HNHM].

Distribution. Russia (Siberia), Mongolia, and **new to the Korean Peninsula.**

Hylaeus (Hylaeus) paulus Bridwell, 1919

Hylaeus paulus Bridwell, 1919: 154.

Hylaeus lepidulus Cockerell, 1924a: 282-283.

Prosopis gracilicornis auctorum, nec Morawitz, 1867 (Dathe *et al.*, 1996).

Specimens examined. 4♂♂1♀: Prov. Ryang-gang, river Karim, 10 km NEE from Bochonbe, 1100 m, 27. Jul. 1975, J. Papp et A. Vojnits leg., No. 295 [HNHM]. 1♀: Gangweondo, Jin bu myeon, 5. Aug. 1986, T. Tano leg. [ELKU]. 1♀: Prov. South Pyongan, Bongwa-ri 45 km E from Pyongyang, 16-17. Aug. 1971, S. Horvatovich et J. Papp leg. [HNHM].

Distribution. Central Europe, Russia, Mongolia, China (Beijing, Heilongjiang, Jilin, Shandong), Korea (Jinbumeon), and Japan (Hokkaido, Honshu, Kyushu).

***Hylaeus (Hylaeus) perforatus* (Smith, 1873)**

Prosopis perforata Smith, 1873: 199.

Hylaeus perforatus Meade-Waldo, 1923: 24

Specimens examined. 4♂♂: Andon, Kyongsangbuk-do, 3-6. Jun. 1970, S. Ohkusa leg. [ELHU]. 1♂: Gangweondo, Jin bu myeon, 5. Aug. 1986, Nozaka leg. [ELKU]. 1♀: Prov. South Pyongan, De-sang san, 12 km NE from Pyongyang, 7. Aug. 1971, S. Horvatovich et J. Papp leg. No. 145 [HNHM]. 1♂: Prov. South Pyongan, Pyongyang, Hotel garden, 7-8. Aug. 1971, S. Horvatovich et J. Papp leg. No. 150 [HNHM]. 3♂♂: Taegu City, Talsongsongvon, 19. Aug. 1985, T. Tano leg. [ELKU]. 2♂♂: Prov. South Pyongan, Pyongyang, Hotel garden, 20-21. Aug. 1971, S. Horvatovich et J. Papp leg. No. 190 [HNHM]. 1♂: Prov. Ryang-gang, Hyesan, Hotel garden, 23. Aug. 1971, S. Horvatovich et J. Papp leg. No. 193 [HNHM].

Distribution. China (Jilin, Jiangsu, Zhejiang, Hubei, Fujian Provs), Korea, and Japan (Honshu: Niigata Pref. & Nagano Pref.).

***Hylaeus (Lambdopsis) macilentus* Ikudome, 1989**

Hylaeus macilentus Ikudome, 1989: 284-289.

Specimen examined. 1♀: S. Korea, Pusan C., Kimhae Airport, 4. VIII. 1989, H. Kurokawa leg. [ELKU].

Distribution. Japan (Hokkaido: Teshio, Honshu: Tokyo, Toyama Pref., Fukui Pref., Hiroshima Pref.), and **new to the Korean Peninsula.**

***Hylaeus (Lambdopsis) pfankuchi* Alfken, 1919**

Prosopis pfankuchi Alfken, 1919: 269.

Hylaeus nipponicus Bridwell, 1919: 151-152.

Hylaeus polevoiae Cockerell, 1924a: 281-282.

Prosopis nigrifacies Gussakovskij, 1932: 64.

Hylaeus japonicus (!): Kuwayama, 1969: 208.

Prosopis euzona Warncke, 1972: 748.

Specimens examined. 1♂1♀: Mt. Sudosan 400 m, Kyongsangbuk-do, 17-18. Jul. 1971, K. Yamagishi leg. [ELKU]. 1♂1♀: Prov. Ryang-gang, river Karim, 10 km NEE from Bochonbe, 1100 m, 27. Jul. 1975, J. Papp et A. Vojnits leg. No. 295 [HNHM].

Distribution. Transpalaearctic-eurosiberian species: Eastern part: Mongolia, Russian Far East, China (Jilin), Japan (Hokkaido, Honshu, Sadogashima, Kyushu), and **new to the Korean Peninsula.**

***Hylaeus (Nesoprosopis) globulus* (Vachal, 1903)**

Prosopis globula Vachal, 1903: 132.

Specimens examined. 5♂♂: Hamyong-gun, GN, Jirisan 350-400 m, N35°24' E127°43', 26. VII. 2018, S. Ikudome leg. [BKWC]. 4♂♂6♀♀: Sancheong-gun, GN, Jirisan, 445 m, N35°24' E127°47', 27.VII.2018, S. Ikudome leg. [BKWC]. 85♂♂14♀♀: Hadong-gun, GN, Jirisan, 710 m, N35°14' E127°42', 27. VII. 2018, S. Ikudome leg. [BKWC]. 2♂♂: Jeju-do, Mt. Hanla, Olimo, 5-8. VIII. 1989, T. Tano leg. [ELKU]. 1♂1♀: Jeju-do, Mt. Hanla, Olimo, 8-10. VIII. 1989, T. Tano & H. Kurokawa leg. [ELKU]. 4♂♂: Jeju-do, Mt. Hanla, Tennouji, 11. VIII. 1989, H. Kurokawa leg. [ELKU]. 1♀: Hongchon, Kangwondo, 4. IX. 1984, Y. Maeta leg. [ELKU].

Distribution. Asian part of Russia, Sakhalin, Japan (Hokkaido, Honshu, Sadogashima, Shikoku, Kyushu, Tsushima), and **new to the Korean Peninsula and Jeju Island.**

***Hylaeus (Nesoprosopis) matsumurai* Bridwell, 1919**

Hylaeus matsumurai Bridwell, 1919: 153.

Specimen examined. 1♂: Suigen, Chosen, 1. Aug. 1927, K. Sato leg. [ELKU].

Distribution. Japan (Hokkaido, Honshu, Shikoku, Kyushu, Tsushima, Amakusa), and **new to the Korean Peninsula.**

***Hylaeus (Nesoprosopis) pectoralis* Förster, 1871**

Hylaeus pectoralis Förster, 1871: 972.

Hylaeus krieckbaumeri Förster, 1871: 973.

Prosopis palustris Perkins, 1900: 49.

Specimen examined. 1♂: Mt. Pektusan, environs Sam-zi-yan hotel wood, 18-20. Jul. 1977, netting in grasses, Dely & Draskovits leg. No. 374 [HNHM].

Distribution. Transpalaeartic species (from the Pyrenees to Japan): Eastern part: Mongolia, Russia (Tomsk Prov., Kemerovo Prov., Khakasia Republic, Primorskiy Terr., Sakhalin, Kuril Islands), Japan (Hokkaido, Honshu), and **new to the Korean Peninsula.**

***Hylaeus (Nesoprosopis) transversalis* Cockerell, 1924**

Hylaeus transversalis Cockerell, 1924a: 275.

Prosopis transversalis Gussakovskij, 1932: 65.

Prosopis sericata Warncke, 1972: 748.

Hylaeus nippon Hirashima, 1977: 29-32.

Hylaeus dathei Chen & Xu, 2012: 63-64.

Specimens examined. 11♂♂4♀♀: Hamyong-gun, GN, Jirisan, 350-400 m, N35°24' E127°43', 26. VII. 2018, S. Ikudome leg. [BKWC]. 1♂: Sancheong-gun, GN, Jirisan, 445 m, N35°24' E127°47', 27. VII. 2018, S. Ikudome leg. [BKWC]. 2♂♂2♀♀: Hadong-gun, GN, Jirisan, 710 m, N35°14' E127°42', 27. VII. 2018, S. Ikudome leg. [BKWC]. 4♀♀: Sejong-shi, CN, Geumsa-ri, 240 m, N36°37' E127°09', 28. VII. 2018, S. Ikudome leg. [BKWC]. 1♀: Suigen, 1. Aug. 1927, K. Sato leg. [ELKU]. 1♂2♀♀: Gangweondo, Seolag park near, 1. Aug. 1986, T. Tano leg. [ELKU]. 1♂: Gangweondo, Osaeg park near, 2-3. Aug. 1986, T. Tano leg. [ELKU]. 1♀: Shokueji, 4. Aug. 1923, K. Sato leg. [ELKU]. 1♀: Pusan City, Kimhae Airport, 4. VIII. 1989, H. Kurokawa leg. [ELKU]. 1♂: Jeju-do, Mt. Hanla, Olimo, 5-8. VIII. 1989, H. Kurokawa leg. [ELKU]. 1♀: Jeju-do, Hanlim Park, 7. VIII. 1989, T. Tano leg. [ELKU]. 1♂: Gangweondo, Hoen-gye, 4. Aug. 1986, T. Tano leg. [ELKU]. 4♀♀: Gangweondo, Seoul, 8. Aug. 1986, Nozaka leg. [ELKU]. 1♂: Seoul, 11. Aug. 1974, I. Kudo leg. [ELHU]. 2♂♂4♀♀: Gaya, Haein-sa Temple, 20-22. Aug. 1985, T. Tano leg. [ELKU]. 8♂♂3♀♀: Taegu City, Apsangongwon, 23-24. Aug. 1985, T. Tano leg. [ELKU]. 1♀: Suigen, Chosen, 30. Aug. 1927, K. Sato leg. [ELKU]. 1♂: Gangweondo, Nagsan beach, 31. Aug. 1986, T. Tano leg. [ELKU]. 1♀: Kaesong, Mts. Pakyon, Pakyon popo 27 km NE from Kaesong, 9. Sep. 1971, S. Horvatovich et J. Papp leg. [HNHM].

Distribution. Russia (Primorskiy Terr., Kuril Islands), China (Beijing, Henan Prov.), Korea (mainland, **new to Jeju Island**), and Japan (Hokkaido, Honshu, Shikoku, Kyushu, Tsushima, Yakushima).

***Hylaeus (Patagiata) nigrocuneatus* Cockerell, 1924**

Hylaeus nigrocuneatus Cockerell, 1924a: 277.

Hylaeus nigrocuneatus var. *rufipennis* Cockerell, 1924a: 278.

Hylaeus brevicuneatus Cockerell, 1924b: 579

Hylaeus lavrushini Cockerell, 1924b: 579.

Hylaeus paradiformis Ikudome, 1989: 224-233.

Specimens examined. 1♂: Mt. Pektusan environs Sam-zi-yan hotel, lake-shore, 18. Jul. 1977, Malaise trap, Dely & Draskovits, No. 371 [HNHM]. 1♂: Prov. Ryang-gang, river Karim, 10 km NEE from Bochonbe, 1100 m, 27. Jul. 1975, J. Papp et A. Vojnits leg. No. 295 [HNHM]. 1♂: Prov. Gang-von district on-dzong, Kum-gang san, Mandzang-tae, 600-650 m, 6. Aug. 1975, J. Papp et A. Vojnits, No. 321 [HNHM]. 1♀: Prov. Ryang-gang,

Plateau, Chann-Pay, Sam-zi-yan, 1600 m, 25. Aug. 1971, S. Horvatovich et J. Papp, No. 197 [HNHM].

Distribution. Mongolia, Russia (Irkutsk Prov., Zabaikalskij Terr., Yakutia, Amurskaya Prov., Jewish Autonomic Prov., Primorskiy Terr., Khabarovsk Terr., Sakhalin), China (Beijin, Jilin, Shandon, Shanghai, Sichuan), Japan (Hokkaido, Honshu, Kyushu), and **new to the Korean Peninsula.**

Hylaeus (Prosopis) confusus Nylander, 1852

Hylaeus confusus Nylander, 1852: 232.

Prosopis sublaevis Schenck, 1853: 215.

Hylaeus xanthocnemis Förster, 1871: 969.

Hylaeus nigriceps Förster, 1871: 977.

Hylaeus similatus Förster, 1871: 994-995.

Prosopis pallididens Dalla Torre, 1896: 28.

Hylaeus monticola Bridwell, 1919: 155.

Hylaeus willmattae Cockerell, 1924a: 280-281.

Specimens examined. 1♀: Mt. Pektusan, environs Sam-zi-yan hotel wood, 18-20. Jul. 1977, netting in grasses, Dely & Draskovits leg. No. 374 [HNHM]. 1♂: Prov. Ryang-gang, Chann-Pay, Plateau, 15 km SSW from Sam-zi-yan, 1600 m, 23. Jul. 1975, J. Papp et A. Vojnits leg. No. 277 [HNHM]: 1♂3♀♀: Prov. Ryang-gang, Chann-Pay, Plateau, 24 km NW from Sam-zi-yan, road to Mt. Pektusan, 2000 m, 24. Jul. 1975, J. Papp et A. Vojnits leg. No. 281 [HNHM]. 1♀: Prov. Ryang-gang, river Karim, 10 km NEE from Bochonbo, 1100 m, 27. Jul. 1975, J. Papp et A. Vojnits leg. No. 295 [HNHM]. 1♂1♀: Prov. Ryang-gang, Plateau, Chann-Pay, Sam-zi-yan, 1500 m, 24. Aug. 1971, S. Horvatovich et J. Papp leg. No. 195 [HNHM]. 1♀: Prov. Ryang-gang, Plateau, Chann-Pay, Sam-zi-yan, 1600 m, 25. Aug. 1971, S. Horvatovich et J. Papp leg. No. 197 [HNHM].

Distribution. Transpalaearctic up to Kuril Islands, China (Gansu, Jilin, Xinjiang, Xizang), Japan (Hokkaido, Honshu, Tsushima), and **new to the Korean Peninsula.**

Discussion

The following *Hylaeus* species have been recorded previously on the Korean Peninsula:

Hylaeus (Hylaeus) paulus Bridwell, 1919*: Ikudome, 1989, 314.

Hylaeus (Hylaeus) perforatus (Smith, 1873)*: Kim, 1980, 151.

Hylaeus (Nesoprosopis) jirisanensis Chen & Xu, 2012, 64-66.

Hylaeus (Nesoprosopis) koreaensis Chen & Xu, 2012, 66-67.

Hylaeus (Nesoprosopis) transversalis Cockerell, 1924*: *H. nipponi*; Ikudome, 1989, 314., *H. dathei*; Chen & Xu, 2012, 63-64.

The species marked with * were recovered in the present study; the following species could be added:

Hylaeus (Hylaeus) aborigensis Dathe, 1994

Hylaeus (Hylaeus) cardioscapus Cockerell, 1924

Hylaeus (Hylaeus) oehlkei Dathe, 2010

Hylaeus (Lambdopsis) macilentus Ikudome, 1989

Hylaeus (Lambdopsis) pfankuchi Alfken, 1919

Hylaeus (Nesoprosopis) globulus (Vachal, 1903)

Hylaeus (Nesoprosopis) matsumurai Bridwell, 1919

Hylaeus (Nesoprosopis) pectoralis Förster, 1871

Hylaeus (Patagiata) nigrocuneatus Cockerell, 1924

Hylaeus (Prosopis) confusus Nylander, 1852

Including the type specimens of *H. jirisanensis* and *H. koreaensis*, which I have not yet been able to

examine, a total of fifteen species of the genus *Hylaeus* from the Korean Peninsula are listed. Four of them, *H. paulus*, *H. pfankuchi*, *H. pectoralis* and *H. confusus*, are widely distributed from Europe across the Korean Peninsula to Japan and therefore appear to be typically transpalaeartic.

The number of species belonging to each subgenus of the genus *Hylaeus* in the distribution areas is shown in Table 1. The characteristics are as follows. It is not very easy to discuss the number of species in the different areas, as various factors such as climate, vegetation, size of the area, etc. have to be taken into account. However, it is well known that Central Asia has a large number of bee species (Michener, 2007). The number of species of the genus *Hylaeus* in the range from Central Asia to Japan is also greatest in Central Asia. At the subgenus level, *Hylaeus* s. str. is conspicuously more species-rich in the western regions. In contrast, *Nesoprosopis* seems to be equally abundant in the eastern regions. On the Korean Peninsula, *Nesoprosopis* is comparatively rich so far. And the proportion of common species (11) from this area in the *Hylaeus* fauna of Japan is at least 42.3%.

It is clear that the low number of species from the Korean Peninsula is not only due to its small size, but also because less information is currently collected here than in other countries. It is very likely that there are actually more than 15 species. One can look forward to the results of future investigations in the area.

Table 1. The number of species belonging to each subgenus of the genus *Hylaeus* in the distributional areas. Based on Dathe & Proshchalykin (2018) = Central Asia (including the territories of Kazakhstan, Uzbekistan, Kyrgyzstan, Turkmenistan and Tajikistan); Dathe & Proshchalykin (2016), Proshchalykin (2017) = Mongolia; Chen & Xu (2009), Chen, Xu & Dathe (2010), Chen & Xu (2013), Ikudome (2013), Proshchalykin & Dathe (2018) = Mainland of China; Proshchalykin & Dathe (2012) = Asian part (A. p.) of Russia; Chen & Xu (2012), Ikudome (present paper) = the Korean Peninsula; Ikudome (1989, 1998, 2004, 2013) = Japan.

Subgenera	Central Asia	Mongolia	Mainland of China	A. p. of Russia	Korean Peninsula	Japan
<i>Abrupta</i>	1	—	—	—	—	—
<i>Dentigera</i>	6	1	3	—	—	—
<i>Hylaeus</i>	46	32	29	15	5	4
<i>Lambdopsis</i>	2	2	2	3	2	4
<i>Iaxoprosopis</i>	—	—	1	—	—	—
<i>Nesohylaeus</i>	—	—	1	1	—	1
<i>Nesoprosopis</i>	1	1	1	5	6	9
<i>Paraprosopis</i>	1	—	2	1	—	5
<i>Patagiata</i>	—	1	—	2	1	1
<i>Prosopis</i>	10	2	3	4	1	2
<i>Spatulariella</i>	2	—	—	—	—	—
Total	69	39	42	31	15	26

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References

- Bridwell, J. C. (1919) Miscellaneous notes on Hymenoptera. *Proceedings of the Hawaiian Entomological Society*, **4**(1): 109-165.
- Chen, H. & Xu, H. (2009) A key to species of the genus *Hylaeus* (Hymenoptera: Colletidae) from mainland of China with descriptions of new species and new records. *Zootaxa*, **1974**: 31-50.
- Chen, H. & Xu H. (2012) Three new species of the genus *Hylaeus* (Hymenoptera: Colletidae) from South Korea. *Zootaxa*, **3419**: 62-68.
- Chen, H. & Xu, H. (2013) Five new species of the genus *Hylaeus* (Hymenoptera: Colletidae) from China. *Zootaxa*, **3669**(3): 331-349.
- Chen, H., Xu, H. & Dathe, H. H. (2010) New subgenus of genus *Hylaeus* (Hymenoptera: Colletidae) with two new records from China. *Entomological Science*, **13**: 116-120.
- Cockerell, T. D. A. (1924a) Descriptions and records of bees. -CII.- *Annals and Magazine of Natural History, Ser. 9*, **14**(81): 273-283.
- Cockerell, T. D. A. (1924b) Descriptions and records of bees. -CIII.- *Annals and Magazine of Natural History, Ser. 9*, **14**(84): 577-585.
- Dalla Torre, C. G. de (1896) *Catalogus Hymenopterorum, hucusque descriptorum systematicis et synonymicus. Vol X: Apidae (Anthophila)*. Engelmann, Lipsiae, 643 pp.
- Dathe, H. H. (2010) Studien zur Systematik und Taxonomie der Gattung *Hylaeus* F. (6). Arten asiatischer Hochgebirge und Anmerkungen zu weiteren asiatischen Arten (Hymenoptera, Anthophila, Colletidae). *Linzer biologische Beiträge*, **42**/1: 43-80.
- Dathe, H. H. (2015) Studies on the systematics and taxonomy of the genus *Hylaeus* F. (10) New descriptions and records of Asian *Hylaeus* species (Hymenoptera: Anthophila, Colletidae). *Cotributions to Entomology*, **65**(2): 223-238.
- Dathe, H. H., von der Heide, A. & Witt, R. (1996) Nachweis einer neuen Maskenbiene für Europa – *Hylaeus lepidulus* Cockerell, 1924 (Hym., Apidae). *Entomologische Nachrichten und Berichte, Dresden*, **40**: 157-163.
- Dathe, H. H. & Proshchalykin, M. Y. (2016) The genus *Hylaeus* Fabricius in Mongolia, an updated species inventory (Hymenoptera: Apoidea, Colletidae). *Zootaxa*, **4121**(4): 351-382.
- Dathe, H. H. & Proshchalykin, M. Y. (2018) The genus *Hylaeus* Fabricius in Central Asia (Hymenoptera: Apoidea: Colletidae). *Zootaxa*, **4517**(1): 1-91.
- Förster, A. (1871) Monographie der Gattung *Hylaeus* F. (Latr.). *Verhandlungen der Zoologisch-Botanischen Gesellschaft in Wien*, **21**: 873-1084.
- Gussakovskij, V. V. (1932) Verzeichnis der von Herrn Dr. R. Malaise in Ussuri und Kamtschatka gesammelten aculeaten Hymenopteren. *Arkiv för Zoologi*, **24A**(10): 1-66.
- Hirashima, Y. (1977) A revision of the Japanese species of *Nesoprosope*, with description of two new species (Hym., Colletidae, *Hylaeus*). *Esakia*, **10**: 21-43.
- Ikudome, S. (1989) A revision of the family Colletidae of Japan (Hymenoptera: Apoidea). *Bulletine of the Institute of Minami-Kyûshû Regional Science, Kagoshima Women's Junior College*, **5**: 1-314.
- Ikudome, S. (1998) The bee genus *Hylaeus* of the Ryukyu Islands, Japan, with description of a new species (Hymenoptera: Colletidae). *Entomological Science*, **1**(4): 589-595.
- Ikudome, S. (1999) *Apiformes*. 549-679 pp. In: Yamane, Sky., Ikudome, S. & Terayama, M. *Identification*

- Guide to the Aculeata of the Nansei Islands, Japan*. Hokkaido University Press, Sapporo, 24 pls. + xii + 831 pp.
- Ikudome, S. (2004) A species added to the *Hylaeus* fauna of Nippon and some notes (Hymenoptera: Colletidae). *Bulletin of Kagoshima Women's Junior College*, (39): 1-6.
- Ikudome, S. (2013) A new species belonging to the genus *Hylaeus* from eastern Asia and a synonym of *Hylaeus tsingtauensis* (Hymenoptera, Apoidea, Colletidae). *Bulletin of Kagoshima Women's College*, (48): 1-4.
- Ikudome, S. & Nakamura, S. (1997) Summary of bee survey in Hiroshima Prefecture, Japan (Hymenoptera, Apoidea). *Miscellaneous reports of the Hiwa Museum for natural history*, (35): 17-29. (In Japanese).
- Kim, C. -W. (1980) *Distribution atlas of insects of Korea, Series 3 Hymenoptera and Diptera*. Korea University Press, Seoul, 356 pp. (*Hylaeus*, p. 151).
- Kuwayama, S. (1967) *Insect Fauna of the Southern Kurile Islands*. Hoku-noukai, Sapporo, 225 p. (In Japanese).
- Maeta, Y. & Ikudome, S. (2009) A colletid bee, *Hylaeus (Nesohylaeus) niger* Bridwell newly found from Iriomote Is., the southernmost archipelago of Japan. *Chugoku Kontyu*, (23): 22.
- Michener, C. D. (2007) *The bees of the world, Second Edition*. Johns Hopkins University Press, Baltimore, Maryland, xvi + [i] + 953 pp., 20 pls.
- Morawitz, F. (1867) Ein Beitrag zur Hymenopteren-Fauna des Ober-Engadins. *Horae Societatis Entomologicae Rossicae*, 5(1-2): 39-71.
- Niemelä, P. (1947) *Prosopis vallei*, n. sp., neu für Finnland. *Annales entomologici Fennici*, 13: 78-86.
- Nylander, W. (1852) Revisio synoptica Apum borealium, comparatis speciebus Europae mediae. *Notiser ur Sällskapets pro Fauna et Flora Fennica Förhandlingar*, 2: 225-286.
- Osytsnjuk, A. Z. & Romankova, T. G. (1995) Family Colletidae. – In: Lehr, P. A. (ed.): *Key to the insects of Russian Far East. Vol. 4. Pt 1*, 606 pp. (pp. 480-489). – Nauka, St. Petersburg. (In Russian).
- Perkins, R. C. L. (1900) *Prosopis palustris*, sp. nov., an addition to the British Hymenoptera. *Entomologist's Monthly Magazine*, 36: 49-50.
- Proshchalykin, M. Y. (2017) Colletid bees (Hymenoptera, Apoidea: Colletidae) of Mongolia: fauna and zonal distribution. *Euroasian Entomological Journal*, 16(2): 192-200.
- Proshchalykin, M. Y. & Dathe, H. H. (2012) The bees of the genus *Hylaeus* Fabricius, 1793 of the Asian part of Russia, with a key to species (Hymenoptera: Apoidea: Colletidae). *Zootaxa*, 3401: 1-36.
- Proshchalykin, M. Y. & Dathe, H. H. (2016) Additional records of the genus *Hylaeus* Fabricius, 1793 (Hymenoptera: Apoidea: Colletidae) from Siberia, with description of a new species. *Zootaxa*, 4105(4): 301-320.
- Proshchalykin, M. Y. & Dathe, H. H. (2018) In the footsteps of history: the bees of the genus *Hylaeus* Fabricius (Hymenoptera, Apoidea: Colletidae) collected by V. I. Rorobovsky and P. K. Kozlov in Northwest China (1895-1926). *Zootaxa*, 4434(3): 573-588.
- Schenck, A. (1853) Nachtrag zu der Beschreibung nassauischer Bienenarten. *Jahrbücher des Vereins für Naturkunde im Herzogthum Nassau, Wiesbaden*, 9: 88-307.
- Vachal, M. J. (1903) Hyménoptères rapportés du Japon par M. Harmand. *Bulletin du Museum National d'Histoire Naturelle, Paris*, 1903(3): 129-132.
- Warncke, K. (1972) [1970] Beitrag zur Systematik und Verbreitung der Bienengattung *Prosopis* F. in der Westpaläarktis (Hymenoptera, Apoidea, Colletidae). *Bulletin des Recherches agronomique de Gembloux, N. S.*, 5: 746-768.
- Wu, Y. R. (1965) *Economic Insect Fauna of China. Fasc. 9, Hymenoptera: Apoidea*. Science Press, Beijing, 83 pp.

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