

## Bees of the Genus *Colletes* (Hymenoptera, Colletidae) from Central Asia Collected by the Kyushu University Expeditions

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<https://doi.org/10.5109/16145>

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出版情報 : ESAKIA. 49, pp.15-20, 2009-12-21. Entomological Laboratory, Faculty of Agriculture, Kyushu University  
バージョン :  
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## Bees of the Genus *Colletes* (Hymenoptera, Colletidae) from Central Asia Collected by the Kyushu University Expeditions

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**Abstract.** In the years 2000 to 2004 the Kyushu University Expeditions to Kazakhstan, Kyrgyzstan and western China collected 238 specimens of the bee genus *Colletes*, representing 19 species. The hitherto unknown female of *C. arsenjevi* Kuhlmann, 2006 is described.

**Key words:** taxonomy, Hymenoptera, Colletidae, *Colletes*, Kazakhstan, Kyrgyzstan, China.

### Introduction

The Mediterranean Basin and Central Asia are the most important centres of bee diversity in the Palaearctic region (Michener 1979), with the latter being the least known. This especially applies to the largely unexplored bee fauna of western China. The *Colletes* fauna of Central Asia was first studied by Kuhlmann (2005), who listed 67 species with a considerable number of them only known from very few records or the type only. For this reason I was happy to have the opportunity to study fresh material collected by five expeditions of the Kyushu University from 2000 to 2004 as part of the project “Field Studies of Wild Bee Fauna and Pollination Biology for Combating Desertification and Planting Campaign in Asian Arid Areas” (Tadauchi 2005).

The goal of this short report is to deal with the bees of the genus *Colletes* collected by the Kyushu University expeditions in Kazakhstan, Kyrgyzstan and China and to describe the previously unknown female of *C. arsenjevi* Kuhlmann, 2006. In total, 238 specimens were collected, representing 19 species. For China, Kazakhstan and Kyrgyzstan, respectively, the following species are recorded for the first time: China: *C. arsenjevi*, *C. fodiens kirgisicus* Radoszkowski, 1868, *C. morawitzi* Noskiewicz, 1936, *C. similis* Schenck, 1853 and *C. wahrmani* Noskiewicz, 1959. Kazakhstan: *C. cinerascens* Morawitz, 1894. Kyrgyzstan: *C. annejohnae* Kuhlmann, 2003.

### Species recorded

#### *nigricans* species group

##### *Colletes eous* Morice, 1904

*Colletes eous* Morice, 1904 – Morice 1904: 43-44.

*Colletes cecrops* Morice, 1904 – Morice 1904: 44-45.

*Colletes porosicus* Strand, 1921 – Strand 1921: 306-307.

*Colletes illyricus* Noskiewicz, 1936 – Noskiewicz 1936: 120-123.

*Colletes dimidiatus eous* Morice, 1904 – Warncke 1978: 339.

*Specimens examined.* [KAZAKHSTAN] 1♂, Ul'ken-Kaindy, Jabagly, 1800m, 5. ix. 2002 (R. Miyanaga).

*Distribution.* Portugal, Spain, France, Italy, Tunisia, Hungary, Croatia, Yugoslavia, Bulgaria, Greece, Turkey, Ukraine, Russia, Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Tadzhikistan, Turkmenistan, Uzbekistan, Iran, India.

#### *caspicus* species group

##### *Colletes anceps* Radoszkowski, 1891

*Colletes anceps* Radoszkowski, 1891 – Radoszkowski 1891: 256.

*Colletes caspicus anceps* Radoszkowski, 1891 – Warncke 1978: 334-335.

*Specimens examined.* [CHINA] 1♀, East of Jerminay, Altay Prov., Xinjiang Uygur Aut. Reg., 1300m, 28. viii. 2002 (A. Dawut).

*Distribution.* Russia, Kazakhstan, Kyrgyzstan, Tadžikistan, Turkmenistan, Uzbekistan, Iran, Pakistan, China.

***Colletes morawitzi* Noskiewicz, 1936**

*Colletes morawitzi* Noskiewicz, 1936 – Noskiewicz 1936: 173-177.

*Specimens examined.* [CHINA] 1♀, near Sayram Lake, Ili Prov., Xinjiang Uygur Aut. Reg., 1970m, 25. viii. 2002 (R. Miyanaga); 1♂, East of Jerminay, Altay Prov., Xinjiang Uygur Aut. Reg., 1300m, 28. viii. 2002 (O. Tadauchi).

*Distribution.* Azerbaijan, Kazakhstan, Kyrgyzstan, Tadžikistan, Turkmenistan, Uzbekistan, Afghanistan. First record for China.

*Floral record.* *Melilotus suaveolens*.

***squamosus* species group**

***Colletes wahrmani* Noskiewicz, 1959**

*Colletes wahrmani* Noskiewicz, 1959 – Noskiewicz 1959: 43-45.

*Specimens examined.* [CHINA] 1♂, Fukang, Changji Prov., Xinjiang Uygur Aut. Reg., 520m, 22. viii. 2002 (R. Murao).

*Distribution.* Turkey, Kazakhstan, Turkmenistan, Uzbekistan, Pakistan, Mongolia. First record for China.

*Floral record.* *Tamarix* sp.

***mixtus* species group**

***Colletes annejohnae* Kuhlmann, 2003**

*Colletes annejohnae* Kuhlmann, 2003 – Kuhlmann 2003: 727.

*Specimens examined.* [KAZAKHSTAN] 4♀, East of Taraz, Jambel Prov., 600m, 3. ix. 2002 (O. Tadauchi, R. Murao). [KYRGYZSTAN] 1♀, Issyk-ata, 1300m, 22. viii. 2003 (O. Tadauchi).

*Distribution.* Kazakhstan. First record for Kyrgyzstan.

*Floral record.* *Tamarix* sp.

***Colletes kozlovi* Friese, 1913**

*Colletes kozlovi* Friese, 1913 – Friese 1913: 59.

*Specimens examined.* [KAZAKHSTAN] 2♂, East of

Taraz, Jambel Prov., 600m, 3. ix. 2002 (O. Tadauchi); 4♂, Kenen, near Otar, Jambel Prov., 20. viii. 2003 (O. Tadauchi). [CHINA] 4♀21♂, Fukang, Changji Prov., Xinjiang Uygur Aut. Reg., 520m, 22. viii. 2002 (R. Murao, A. Dawut, O. Tadauchi); 2♂, Kuitun City, Ili Prov., Xinjiang Uygur Aut. Reg., 530m, 24. viii. 2002, (O. Tadauchi).

*Distribution.* Russia, Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan, Mongolia, China.

*Floral record.* *Tamarix* sp.

***roborovskyi* species group**

***Colletes roborovskyi* Friese, 1913**

*Colletes roborovskyi* Friese, 1913 – Friese 1913: 59.

*Specimens examined.* [KAZAKHSTAN] 2♂, Big Almaty Lake, Almaty Prov., 1360m, 1. ix. 2002 (O. Tadauchi, R. Murao); 3♀, Chilik, 3. ix. 2002 (R. Murao). [KYRGYZSTAN] 3♀1♂, Issyk-ata, near Bishkek, 1650m, 22. viii. 2003 (O. Tadauchi).

*Distribution.* Turkey, Russia, Georgia, Azerbaijan, Kazakhstan, Kyrgyzstan, Tadžikistan, Turkmenistan.

***arenarius* species group**

***Colletes arenarius* Morawitz, 1876**

*Colletes arenarius* Morawitz, 1876 – Morawitz 1876: 263-264.

*Specimens examined.* [KAZAKHSTAN] 1♂, Kogam, near Otrar, S. Kazakhstan Prov., 250m, 31. v. 2003 (O. Tadauchi).

*Distribution.* Kazakhstan, Tadžikistan, Turkmenistan, Uzbekistan.

***flavicornis* species group**

***Colletes alicularis* Noskiewicz, 1936**

*Colletes alicularis* Noskiewicz, 1936 – Noskiewicz 1936: 260-264.

*Specimens examined.* [KAZAKHSTAN] 1♀2♂, NW of Tatti, Muyunkum desert, 562 – 325m, 15. v. 2004 (O. Tadauchi); 4♂, NW of Tatti, Muyunkum desert, Jambul Prov., 562m, 15. v. 2004 (R. Murao).

*Distribution.* Kazakhstan, Tadžikistan, Turkmenistan.

***Colletes flavicornis* Morawitz, 1876**

*Colletes flavicornis* Morawitz, 1876 – Morawitz 1876: 267-268.

*Specimens examined.* [KAZAKHSTAN] 2♀20♂, Lake Charbinskoe, Chordara, Wof Tashkent, 180m, 30.iv. 2004 (O. Tadauchi, R. Murao); 3♂, Wof Kamsomolskoe, Kyzylkum desert, 1. v. 2004 (O. Tadauchi); 1♀, NW of Tatti, Muyunkum desert, 562 – 325m, 15. v. 2004 (O. Tadauchi); 1♂, NW of Tatti, Muyunkum desert, Jambul Prov., 562m, 15. v. 2004 (R. Murao).  
*Distribution.* Kazakhstan, Turkmenistan, Uzbekistan.

### ***fodiens* species group**

#### ***Colletes fodiens kirgiscus* Radoszkowski, 1868**

*Colletes fodiens kirgiscus* Radoszkowski, 1868 – Radoszkowski 1868: 77-78.

*Specimens examined.* [KAZAKHSTAN] 1♂, near Sternjak, Kokchetav District, 20. vii. 2002 (V. Kazenas, A. Jdanko, V. Rascheev); 2♀, near Sternjak, Kokchetav District, 25. vii. 2002 (V. Kazenas, A. Jdanko, V. Rascheev). [KYRGYZSTAN] 2♀, Arashan, near Karakol, E of Lake Issik-Kol, 1850m, 25. viii. 2004 (O. Tadauchi). [CHINA] 1♀, East of Jeminay, Altay Prov., Xinjiang Uygur Aut. Reg., 1300m, 28. viii. 2002 (O. Tadauchi).

*Distribution.* Turkey, Kazakhstan, Kyrgyzstan, Iran, Pakistan, Mongolia. First record for China.

*Floral record.* *Chondrilla* sp.

#### ***Colletes similis* Schenck, 1853**

*Colletes similis* Schenck, 1853 (nec Robertson, 1904, nec Jørgensen, 1912) – Schenck 1853: 172.

*Colletes picistigma* Thomson, 1872 – Thomson 1872: 165-166.

*Specimens examined.* [KAZAKHSTAN] 3♂, Fabrichini, Almaty Pref., 850m, 26. v. 2000 (O. Tadauchi); 1♀1♂, Jabagly, S. Kazakhstan Prov., 1080m, 4. ix. 2002 (R. Murao); 13♂, Ul'ken-Kaindy, Jabagly, 1800m, 5. ix. 2002 (O. Tadauchi); 1♂, Aksu Valley, 950m, 6. ix. 2002 (R. Miyanaga); 2♀1♂, Jabagly, S. Kazakhstan Prov., 1080m, 7. ix. 2002 (O. Tadauchi). [CHINA] 1♀, East of Jeminay, Altay Prov., Xinjiang Uygur Aut. Reg., 1300m, 28. viii. 2002 (R. Miyanaga).

*Distribution.* Ireland, Great Britain, Portugal, Spain, Norway, Sweden, Netherlands, Belgium, France, Denmark, Germany, Switzerland, Austria, Finland, Poland, Czech Republic, Hungary, Italy, Slovenia, Yugoslavia, Romania, Greece, Morocco, Algeria, Tunisia, Cyprus, Syria, Israel, Jordan, Ukraine, Russia, Turkey, Georgia, Armenia, Azerbaijan, Kazakhstan, Kyrgyzstan, Tadzhikistan, Turkmenistan,

Iran. First record for China.

*Floral records.* *Achillea* sp., *Mentha asiatica*, Compositae gen. et sp., Leguminosae gen. et sp., Umbelliferae gen. et sp.

#### ***Colletes tuberculatus* Morawitz, 1894**

*Colletes tuberculatus* Morawitz, 1894 – Morawitz 1894: 80-81.

*Colletes daviesanus tuberculatus* Morawitz, 1894 – Warncke 1978: 349-350.

*Specimens examined.* [KAZAKHSTAN] 1♀, Big Almaty Lake, Almaty Prov., 1600 – 1850m, 28. viii. 2004 (O. Tadauchi).

*Distribution.* Ukraine, Turkey, Georgia, Kazakhstan, Kyrgyzstan, Tadzhikistan, Turkmenistan, Uzbekistan, Iran, Pakistan.

### ***senilis* species group**

#### ***Colletes mlokoszewiczi* Radoszkowski, 1891**

*Colletes mlokoszewiczi* Radoszkowski, 1891 – Radoszkowski 1891: 254.

*Colletes brevicornis* Perez, 1903 (nec Robertson, 1897) – Perez 1903: 226-227.

*Colletes brachycerus* Swenk, 1906 – Swenk 1906: 44.

*Specimens examined.* [KAZAKHSTAN] 1♀20♂, Uzenagash, Almaty Pref., 28. v. 2000 (D. Ahmatjan); 4♀4♂, Degeres, Almaty Pref., 850m, 28. v. 2000 (D. Ahmatjan); 2♂, Kurday, Almaty Pref., 880m, 28. v. 2000 (D. Ahmatjan); 11♀32♂, Nogaibay, Almaty Pref., 780m, (D. Ahmatjan, O. Tadauchi); 2♀, Jabagly, S. Kazakhstan Prov., 1080m, 4. ix. 2002 (R. Murao); 1♂, Aksu Valley, 950m, 6. ix. 2002 (R. Miyanaga). [KYRGYZSTAN] 2♂, Bishkek City, 27. v. 2000 (D. Ahmatjan); 1♂, Issyk-ata, 1300m, 27. v. 2000 (D. Ahmatjan); 1♀9♂, Krasnayarichika, 800m, 27. v. 2000 (O. Tadauchi); 1♀, Bishkek, 28. v. 2000 (D. Ahmatjan).

*Distribution.* Portugal, Spain, France, Switzerland, Austria, Czech Republic, Slovakia, Hungary, Italy, Croatia, Yugoslavia, Romania, Bulgaria, Greece, Turkey, Ukraine, Russia, Georgia, Azerbaijan, Kazakhstan, Kyrgyzstan, Tadzhikistan, Turkmenistan, Uzbekistan.

*Floral records.* *Achillea* sp., *Brassica* sp., *Dianthus* sp., *Trifolium repens*, Compositae gen. et sp., Umbelliferae gen. et sp.

**clypearis species group*****Colletes cinerascens* Morawitz, 1894**

*Colletes cinerascens* Morawitz, 1894 – Morawitz 1894: 80.

*Specimens examined.* [KAZAKHSTAN] 1♀2♂, Ul'ken-Kaindy, Jabagly, 1800m, 5. ix. 2002 (O. Tadauchi).

*Distribution.* Kyrgyzstan, Tadžikistan, Mongolia. First record for Kazakhstan.

***Colletes floralis* Eversmann, 1852**

*Colletes floralis* Eversmann, 1852 – Eversmann 1852: 46.

*Colletes montanus* Morawitz, 1876 – Morawitz 1876: 262-263.

*Colletes suecica* Aurevillius, 1903 – Aurivillius 1903: 214-215.

*Colletes kudiensis* Cockerell, 1924 – Cockerell 1924: 594-595.

*Colletes yasumatsui* Hirashima & Ikudome, 1989 – Ikudome 1989: 109-117.

*Specimens examined.* [KAZAKHSTAN] 1♂, Big Almaty Lake, Almaty Prov., 2000 – 2050m, 1. ix. 2002 (R. Murao); 4♂, Ul'ken-Kaindy, Jabagly, 1800m, 5. ix. 2002 (O. Tadauchi, R. Miyanaga); 2♂, Kashi-Kaindy, Jabagly, 1700 – 1800m, 5.ix.2002 (O. Tadauchi, R. Miyanaga); 1♀, Aksu Valley, 950m, 6. ix. 2002 (R. Miyanaga); 1♀, Jabagly, S. Kazakhstan Prov., 1080m, 7. ix.2002 (O. Tadauchi).

*Distribution.* Spain, Ireland, Great Britain, France, Norway, Sweden, Germany, Switzerland, Austria, Italy, Finland, Poland, Czech Republic, Hungary, Greece, Turkey, Belarus, Russia, Georgia, Kazakhstan, Kyrgyzstan, Tadžikistan, Iran, Mongolia, India, Japan.

*Floral records.* *Tamarix* sp., Compositae gen. et sp.

***Colletes jankowskyi* Radoszkowski, 1891**

*Colletes jankowskyi* Radoszkowski, 1891 – Radoszkowski 1891: 253-254.

*Colletes ventralis* Perez, 1903 – Perez 1903: 225.

*Colletes ventraliformis* Cockerell, 1924 – Cockerell 1924: 595-596.

*Specimens examined.* [CHINA] 2♀, Xiangshan Park, Beijing, 20. viii. 2002 (R. Murao).

*Distribution.* Russia, Tadžikistan, Mongolia, China.

**marginatus species group*****Colletes chengtehensis* Yasumatsu, 1935**

*Colletes chengtehensis* Yasumatsu, 1935 – Yasumatsu 1935: 1-2, 35-36, Plate 1.

*Colletes pallescens* Noskiewicz, 1936 – Noskiewicz 1936: 468-469.

*Colletes tsunekii* Yasumatsu, 1948 – Yasumatsu 1946(1948): 19.

*Colletes marginatus pallescens* Noskiewicz, 1936 – Warncke 1978: 358.

*Specimens examined.* [KAZAKHSTAN] 2♂, Fabrichini, Almaty Pref., 850m, 26. v. 2000 (O. Tadauchi); 1♂, Kemertogan, Almaty Pref., 26. v. 2000 (D. Ahmatjan); 1♀, Uzenagash, Almaty Pref., 28. v. 2000 (D. Ahmatjan); 1♂, Almaty city, Almaty Pref., 29. v. 2000 (D. Ahmatjan); 2♀, Kenen, near Otar, Jambel Prov., 20. viii. 2003 (O. Tadauchi). [CHINA] 1♂, Kuitun City, Ili Prov., Xinjiang Uygur Aut. Reg., 530m, 24. viii. 2002 (O. Tadauchi); 1♀1♂, Jeminay County, Altay Prov., Xinjiang Uygur Aut. Reg., 27. viii. 2002 (R. Miyanaga).

*Distribution.* Austria, Hungary, Romania, former Yugoslavia, Greece, Ukraine, Russia, Georgia, Azerbaijan, Kazakhstan, Kyrgyzstan, Turkmenistan, Uzbekistan, Iran, Mongolia, China.

*Floral records.* *Brassica* sp., *Trifolium repens*, Leguminosae gen. et sp.

**succinctus species group*****Colletes arsenjevi* Kuhlmann, 2006**

(Figs. 1, 2)

*Colletes arsenjevi* Kuhlmann, 2006 – Kuhlmann & Quest 2006: 2-4.

*Specimens examined.* [CHINA] 1♂, Jeminay County, Altay Prov., Xinjiang Uygur Aut. Reg., 27. viii. 2002 (R. Murao); 2♀2♂, East of Jeminay, Altay Prov., Xinjiang Uygur Aut. Reg., 1300m, 28. viii. 2002 (R. Murao, A. Dawut, O. Tadauchi).

Females of this species were collected for the first time. Because of the close resemblance of *C. arsenjevi* and the well known *C. brevigena* Noskiewicz, 1936 the description is limited to the differences between both species.

*Diagnosis.* In general morphology and especially in the diagnostically important sculpturing of the clypeus (Fig. 1), the punctuation of T1 (Fig. 2) and the width of





**Figs. 1-2.** *Colletes arsenjevi* female. 1, clypeus. 2, punctation and pilosity of tergum 1.

apical tergal hair bands (Fig. 2), *C. arsenjevi* is identical with *C. brevigena*. The females of both species only differ in the diameter of punctures on the scutal disk, with the largest punctures of *C. arsenjevi* being about twice the diameter of those in *C. brevigena*. The unknown female of *C. standfussi* Kuhlmann, 2003 might resemble *C. arsenjevi* because the male of the former has a similarly coarse punctation of T1, but the apical tergal hair bands are narrower.

Neither the known distribution ranges of *C. brevigena* nor *C. standfussi* (only known from the type locality in NE Greece) overlap with that of *C. arsenjevi*.

**Remarks.** The apical tergal hair bands of the males of *C. arsenjevi* from western China are slightly broader than in specimens from Mongolia and the Russian Far East.

**Distribution.** Russia, Mongolia. First record for China.

### Acknowledgement

I am very much indebted to Dr. Osamu Tadauchi, Fukuoka, for his generous permission to study the *Colletes* bees collected by the Kyushu University Expeditions. Special thanks to Andrew Polaszek for preparing the photographs and Gavin Broad for proof-reading the manuscript.

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