

New taxonomic information on and distribution records for Chinese hover-flies of the genus *Cheilosia* Meigen (Diptera, Syrphidae)

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Information on 35 Chinese species belonging to the genus *Cheilosia* represented in the collections of the Institute of Zoology of the Chinese Academy of Sciences (Beijing) is presented here. Among them are 18 recorded here for the first time from China. Up to now 44 *Cheilosia* species have been known from China. Among the material examined are the undescribed females of 5 species (*C. intermedia*, *C. lucida*, *C. neversicolor*, *C. sera* and *C. suspecta*). These are described and figured here for the first time. The male genitalia of *C. aterrima* and *C. longiptera* are also figured.

Key words: *Cheilosia*, new records, decriptions, China, Syrphidae.

Zusammenfassung

Die Sammlung des Zoologischen Instituts der Chinesischen Akademie der Wissenschaften (Beijing) umfasst Material von 35 *Cheilosia*-Arten aus China, darunter 18 Arten, die für China erstmals nachgewiesen werden. Damit sind inzwischen 44 *Cheilosia*-Arten aus China gemeldet. Die bisher unbekanntes Weibchen von fünf Arten (*C. intermedia*, *C. lucida*, *C. neversicolor*, *C. sera* und *C. suspecta*) werden beschrieben und abgebildet, außerdem die männlichen Genitalien von *C. aterrima* und *C. longiptera*.

List of species

Cheilosia (s. str.) *albohirta* Hellén

Chilosia albohirta Hellén, 1930: 27 (Russia, Ostsibirien: Transbaicalien, Dauria)

First record for China; previously known from Russia (southern Siberia and Far East) and Mongolia (Central and Uburchangaj aimaks). – Material examined: China. Heilongjiang: Harbin 22 April 1954 (4 males, 5 females); Hebei: 15 May 1931 (1 male, 1 female).

Cheilosia (Eucartosyrphus) aokii Shiraki

Cheilosia aokii Shiraki, 1953: 91 (Japan, Nagano Pref., Kamikochi)

First record for China; previously known from Russian Far East and Japan. – Material examined: China. Jilin: Kaolintze (now, Heilongjiang province, Gaolinzi) July 1939 (1 male); Gansu: Wenxian, 2250-2650 m 29-30 June 1998 (1 male).

Cheilosia (? s. str.) *aterrima* Sack

Cheilosia aterrima Sack, 1927: 305 (China, Taiwan, aus Toa Tsu Kutsu)

First record for China; previously known from Taiwan and Japan. Records from the Russian Far East (Barkalov in Violovitch 1983, Mutin, Barkalov 1997) were based on misdetermined specimens. – Material examined: China. Zhejiang: Tianmushan 19-22 April 1932; Moganshan 25 April-1 May 1936 (6 males, 3 females).

Taxonomic note: Barkalov (2002) classified this species in the subgenus *Cheilosia* s. str. but its subgeneric position is at present uncertain. Claussen (2000) put this species, together with *C. lucida* Barkalov & Cheng and *C. splendida* Shiraki, in the *aterrima*-species group. It may be necessary to allocate this group to a separate subgenus, but this question demands further study. The male genitalia (figs 5-8) may help to decide the issue.

Cheilosia (Taeniochilosia) barkalovi Ståhls

Cheilosia barkalovi Ståhls in Barkalov & Ståhls, 1997: 16 (Kazakhstan, Talgar)

First record for China; previously known from the southern Kazakhstan, Kirghizia and Turkmenistan. We earlier wrongly determined specimens of this species as *C. latigena* Barkalov & Peck (Barkalov & Cheng 1998). *C. latigena* must be deleted from the list of Chinese *Cheilosia*. – Material examined: China. Xinjiang: Tianshan 19 July 1957; Zhaosu, 2900m, 26-28 July 1978; Shawan, 2700m 22 August 1957 (18 males, 15 females).

Cheilosia (Nephocheila) bombiformis (Matsumura)

Nephomylia bombiformis Matsumura, 1916: 220 (Japan, Honshu, Nikko)

First record for China; previously known from the Russian Far East and Japan. – Material examined: China. Heilongjiang: Bugt (now belongs to Leimongol province) 27 August 1971 (1 female); Jilin: Hunjiang, 1000m 6 August 1983; Kaolintze 2-20 August 1940, 1955; Linjiang, 800m 3 August 1983 (3 males, 1 female); Shanxi: Foping, 1900-2100m 24 July 1998 (1 male); Sichuan: Lixian, 2700-2800m 12-13 August 1983; Nanping, 2400-2500m 1-3 August 1993; Batang, 3470m 16 August 1982; Zayu, 3400-4200m 12 August 1933 (2 males, 6 females); Xizang: Markam, 2700m 22 July 1983 (1 female).

Cheilosia (s. str.) *difficilis* Hervé-Bazin

Cheilosia difficilis Hervé-Bazin, 1929: 97 ("China, la basse vallée du Yang-Tse-Kiang: Chang-Hai")

This species was previously known from Shanxi province. – Material examined: China. Sichuan province, Emei shan 19 May 1957; Wolong, 1500m 5 August 1989 (1 male, 1 female).

Cheilosia (*Montanocheila*) *distincta* Barkalov & Cheng

Cheilosia distincta Barkalov & Cheng, 1998: 313 (China, Sichuan, Xiangcheng)

This species was previously known from Sichuan province. – Material examined: China. Shanxi: Ningshan, 1800m 16 August 1973 (1 male, 1 female); Xizang (Tibet): Jamda, 3400m 7 June-29 July 1976; Zhag'yab, 3600 m 8-11 July 1976; Zogang, 3800m 30 June-21 July 1976; Nyalam, 3300m 9 May 1974 (8 males, 11 females); Yunnan: Deqen, 3200-3500m 23 July 1983 (1 female).

Cheilosia (*Endoiasimyia*) *formosana* (Shiraki)

Sonanymyia formosana Shiraki, 1930: 321 ("China, Taiwan, Asahi, Tenchosan, Arisan, Shu-Shu")

This species was previously known from the Russian Far East, Japan and the Taiwan province of China. – Material examined: China. Gansu province, Zhugqu, 2400m 14 July 1999; Kangxian, 1200m 30 July 1980 (1 male, 1 female); Sichuan: Emei shan 27 July-20 August 1957 (8 males, 2 females); Yunnan: 2400m 10 May 1955 (1 female); Xizang: Medog 7 September 1998 (1 male, 1 female); Guangxi: Jinxiu, 600m 24 May 1999 (1 female).

Cheilosia (s. str.) *gigantea* (Zetterstedt)

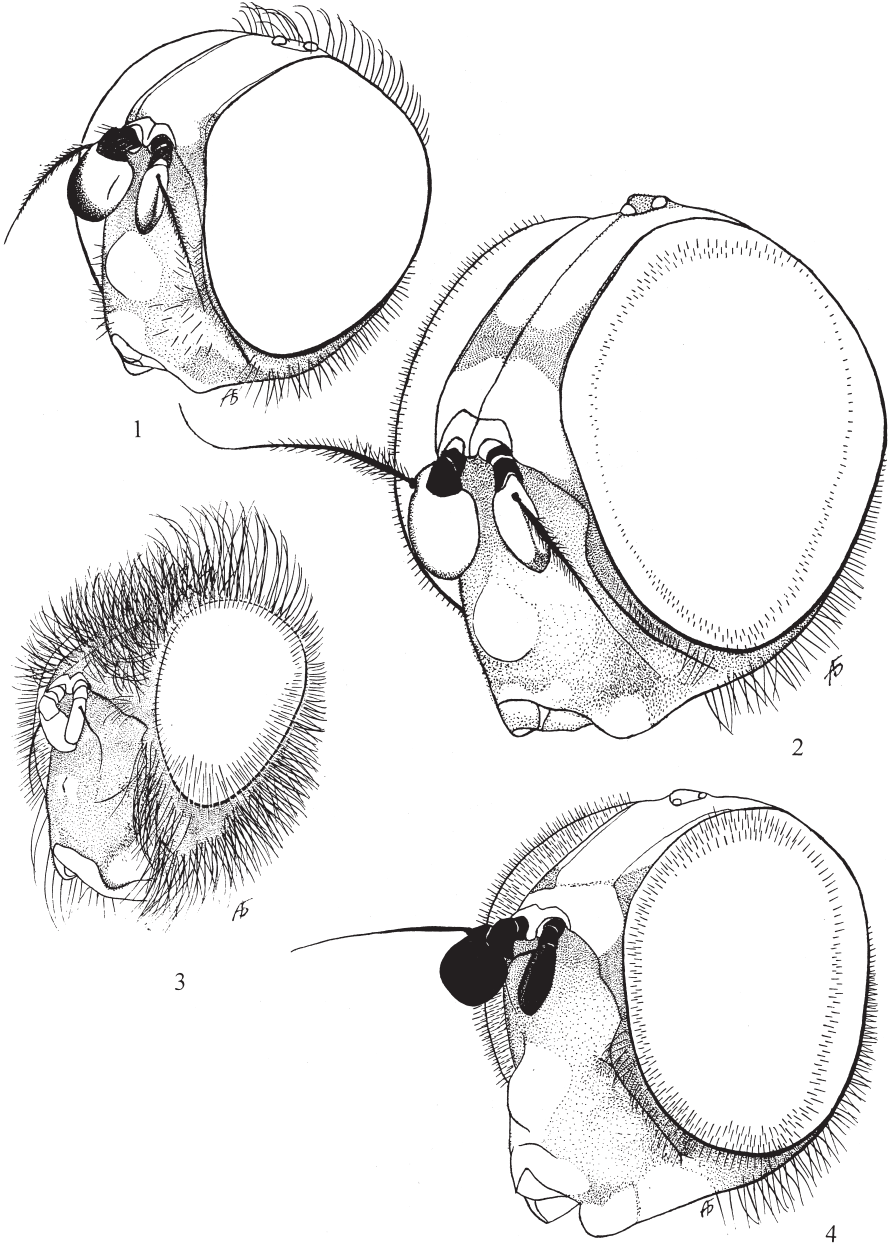
Eristalis gigantea Zetterstedt, 1838: 612 (Sweden, "in Lapponia; e Tonoa in Nordlandia ad Bjorkvik ... [Lapponia; e Westrogothia ...]")

First record for China; previously known from the temperate zone of the Palaearctic. – Material examined: China. Jilin province, Kaolintze 13 June 1940 (1 female).

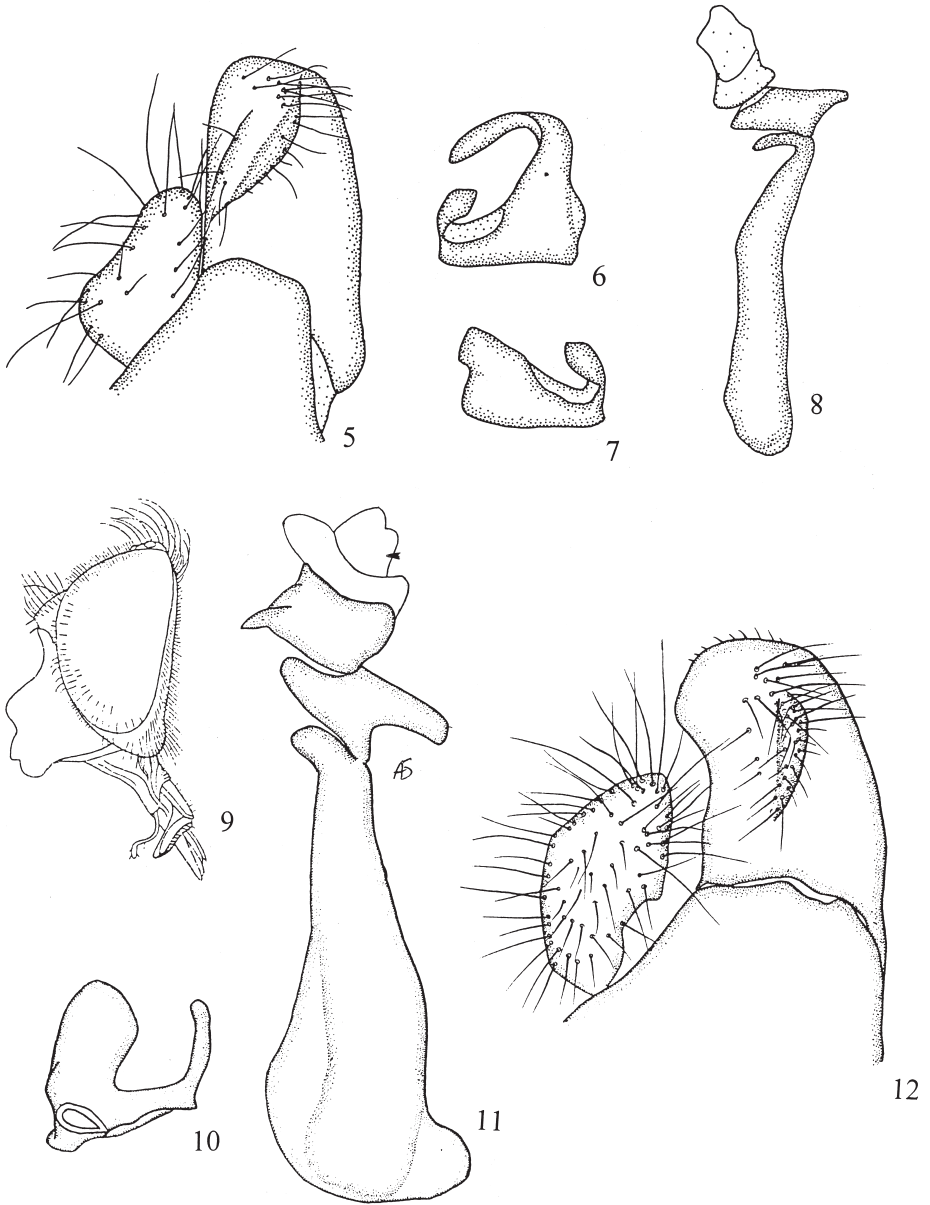
Cheilosia (*Nephocheila*) *grahami* Barkalov

Cheilosia grahami Barkalov, 1999: 72 (China, Sichuan, West of Chetu Pass near Tatsienlu)

This species was previously known from Sichuan province. – Material examined: China. Beijing: Xiaolongmen 27 August 1991 July 1997 (1 male); Qinhai: Yushu, 4000-4200m 20-22 July 1964 (1 male, 1 female); Xizang: Markam, 3200-3700m 12-20 July 1961 (2 males, 1 female); Yunnan: Lijiang, 3200m 16 July 1984, Deqen, 3700-4100m 17-29 July 1982, 26 August 1981 (6 males, 4 females).



Figs 1-4: *Cheilosia* spec., heads of females. – 1. *C. intermedia*; – 2. *C. lucida*; – 3. *C. neversicolor*; – 4. *C. sera*.



Figs 5-8: *Cheilosia aterrima*, male genitalia (lateral view). – 5. Gonocercus and surstylus; – 6, 7. Superior lobes of hypandrium; – 8. Aedeagus. – **Figs 9-12: *Cheilosia longiptera*.** – 9. Head in profile; – 10. Superior lobe of hypandrium laterally; – 11. Aedeagus laterally; – 12. Gonocercus and surstylus laterally.

Cheilosia (s. str.) *impressa* Loew*Cheilosia impressa* Loew in Schiner, 1857: 290 ("Posen" [= Poznan in Poland])

First record for China; previously known from moderate zone of Palaearctic. – Material examined: China. Heilongjiang: Yichun 2 September 1970 (1 female); Jilin: Kalintzi 28 June 1939, 2-17 July 1940 and 17 July 1954 (2 males, 2 females); Nei Mongol: Minamino 22 July 1937 (1 female); Xinjiang: Zhaoshu 22 July 1978 (1 female).

Cheilosia (*Eucartosyrphus*) *intermedia* Barkalov*Cheilosia intermedia* Barkalov, 1999: 74 (China, Sichuan, Gao-Gi)

Only males were previously known, from Sichuan province.

Female nov.

Description: **Head**: Face comparatively narrow, almost with parallel sides, shining, finely grey pollinose, in lower half short white pilose; central knob small; parafacials very narrow, shining in middle, grey pollinose otherwise, short white pilose; cheeks narrow, densely silver pollinose and comparatively long white pilose. Frons narrow, black, shining, in anterior part near eyes with 2 small gray spots; covered with semi-depressed black pile; central furrow indistinct, lateral furrows near eyes (fig. 1); lunula brown, its anterior process only touching the face, so antennal pits confluent; antennae: scape and pedicel black; basoflagellomere distinctly enlarged, brown with blackish anterior part (fig. 1); arista long, black distinctly pilose; eyes bare; vertical triangle equilateral.

Thorax: Prothorax: basisternum and proepisternum broad, completely confluent. Postpronotum brown, dense grey pollinose; scutum with fine punctuation, shining, black, covered with short, semi-depressed, yellow pile, on sides some black bristles; hind margin of scutellum with long, strong, black bristles; pleurae black, densely grey pollinose, short white pilose. Katepisternum with broadly separated patches of white hairs. Legs mainly black, only fore trochanter, tips of femora, basal 1/3 and tips of tibiae, tips of all tarsal segments and mid basotarsomere reddish-brown; femora densely grey pollinose. – Haltere yellow. – Calypter white. – Wing: Brownish, internal angle between veins M1 and R4+5 acute.

Abdomen: Oval, black, slightly broader than mesonotum, broadest at the apical margin of tergite II; matt, brownish pollinose; erect, white pilose on sides of tergites I-II and on anterior part of tergite III, short, black, depressed hairs otherwise.

Size: Body 7.5 mm; wing 7.8 mm.

Material examined: China. Shanxi: Foping, 1900-2100m 24 July 1998 (1 male); Gansu: Zhouqu, 2400 m 4-16 July 1999 (6 males, 2 females); Sichuan: Emei shan, 1800-2000m 12 July 1957; Wolong, 2500m 8 August 1983; Nanping 9 August 1983; Luding, 1550m 25 July 1982 (2 males, 3 females).

Taxonomic note: The taxonomic position of *C. intermedia* is not yet clear. In some characters – bare eyes, connected antennal pits, broad central knob of male and partly yellow legs – it is necessary to refer this species to the subgenus *Eucartosyrphus*, but the male terminalia of this species are very distinct and don't correspond to genitalia

of others species of the subgenus (Barkalov 2002). Like others, this species apparently forms a species-group within the subgenus. On the basis of the character of the terminalia within *Eucartosyrphus* it is possible to discriminate three groups of species inhabiting China: *scutellata*-group, *longula*-group and *intermedia*-group. Only *C. scutellata* (Fallén) belongs to the first group, *C. aokii* Shiraki, *C. cystalyncha* Barkalov, *C. josankeiana* (Shiraki), *C. kulinensis* (Hervé-Bazin), *C. longula* (Zetterstedt) and *C. nuda* (Shiraki) to the second. To the third group belongs *C. intermedia*. We don't use the construction of the pronotum in separation of the species-groups because this character varies, as in the subgenera *Eucartosyrphus* and *Taeniochilosia*. We do not consider the species-group "*angustigenis+sibirica*", established by Claussen (2000), as monophyletic, because it contains representatives of two taxa (*Eucartosyrphus* and *Taeniochilosia*). We studied 11 species of the first subgenus and 25 species of the second. That study established that 16 species of the subgenus *Taeniochilosia* have the upper part of the basisternum narrow and the basisternum and proepisternum broadly separated, while 9 others have the upper part of the basisternum broad and the basisternum and proepisternum confluent. In the subgenus *Eucartosyrphus* the ratio of species with confluent and separated basisternum and proepisternum is 6:5. There are also intermediate conditions of the basisternum and proepisternum when these sclerites are expanded but not confluent.

Cheilosia (Eucartosyrphus) josankeiana Shiraki

Cheilosia josankeiana Shiraki, 1930: 306 (Japan, Hokkaido, Josankei)

This species was previously known from the Russian Far East, Japan and Sichuan province (Barkalov & Cheng 1998, Barkalov 1999). – Material examined: China. Jilin: Kaolintze 4-10 July 1939 (1 female); Shanxi: Shanya, 1580-1600m 23 August 1998 (1 female); Gansu: Wenxian, 2350-2650m 30 June 1998, 17 July 1999; Kangxian, 1450-1550m 13 July 1998 (2 males, 1 female).

Cheilosia (Montanocheila) kirgizorum Peck

Cheilosia kirgizorum Peck, 1971: 696 (Kirghizia, valley of Sary-Djaz river, Muz-Mulak pass).

First record for China; previously known from Kirghizia. – Material examined: China. Qinhai: Hohxil 2 July 1990 (1 male); Xinjiang: Akto, 3650-3800m 19 July 1989; Taxkogan, 4400-4600m 12 August 1989 (2 males); Sichuan: Balang shan, 4300m 7 August 1983 (1 male).

Cheilosia (Nephocheila) longiptera Shiraki

Cheilosia longiptera Shiraki, 1968: 103 (Japan, Mt. Tadeshina, Nagano Pref.)

First record for China; previously known from Kuril Islands, Korea and Japan. – Material examined: China. Sichuang: Batang, 4350-4600m 18 August 1982 (1 male).

Taxonomic note: Barkalov (2002) classified this species in the subgenus *Cheilosia* s. str. After further examination of male genitalia, we recommend consigning it to the subgenus *Nephocheila*. Arguments for this classification are the elongated face, the

asymmetric superial lobes of the hypandrium and the merged basal and apical segments of the aedeagus (figs 9-12).

Cheilosia (Eucartosyrphus) longula (Zetterstedt)

Eristalis longulus Zetterstedt, 1838 (Sweden, "Lapponia Tornensi et ad Lycksele Lapponiae Umensis [Lapponia]")

In China this species was previously known from Sichuan province (Barkalov & Cheng 1998, Barkalov 1999). – Material examined: China. Gansu: Zhouqu, 2400m 16 July 1999 (1 male); Hubei: Xinshan, 1670m 23 July 1993 (1 male, 1 female); Xizang: Markam 3230m, Nanping 9 August 1983 (9 males, 4 females); Yunnan: Dali 27 July 1933 ; Zhongdian, 3000-3150m 6 August 1981, 10 July 1982; Weixi, 2920m 17 July 1981 (5 males, 3 females); Xizang: Nyingchi, 2950-3050m 7 August 1983; Zhag'yab, 3600m 8 July 1976 (2 males).

Cheilosia (? s. str.) *lucida* Barkalov & Cheng

Cheilosia lucida Barkalov & Cheng 1998: 318 (China, Sichuan, Emei shan)

Only the male was known previously, from Sichuan province.

Female nov.

Description: H e a d : Face distinctly broadened in lower part, black or brown on lower part, covered with dense grey pollinosity without pile; central knob broad; parafacials narrow, distinctly narrower than half the width of basoflagellomere, covered with dense silver pollinosity and very short silver pile; cheeks narrow with grey pollinosity and white pile. Frons narrow, at the level of the antennal base (see anteriorly) about 3.5 times less than head width, on anterior half with a broad band of grey pollinosity; with 3 furrows, lateral furrows near eyes border (fig. 2); covered with sparse, black pile; lunula black or brown, antennal pits separated; antennae yellow, basoflagellomere oval with dark upper rim, arista black, long pilose (fig. 2); eyes covered with dense, short, white pile; occipital triangle equilateral, covered with dense grey pollinosity and yellow and black or only black pile.

T h o r a x : Postpronotum black or brown, grey pollinose; scutum green, brownish pollinose, fine punctuated, pile short, erect, yellow, on each side with 5 very long and strong black bristles; hind margin of scutellum with yellow pile and long, black bristles. Pleurae black with dense brownish pollinosity and erect, yellow pile; anepisternum with long, strong, black bristle on dorso-posterior angle; Katepisternum with broadly separated patches of white hairs. Legs mainly yellow, only middle and hind coxae and the two apical segments of tarsi blackish. Haltere yellow. Wings with distinct brown spot on apical 1/3, inner angle between M1 and R4+5 slightly more than 90°.

A b d o m e n : oval, approximately equal in width to the mesonotum, black with greenish reflection, covered with grey pollinosity and yellow pile, erect on sides and semi-erect and depressed on middle part.

S i z e : 9.7-10.2 mm.

Material examined: China. Sichuan: 1800-2000m, 21-30 August 1957 9 August-1 September 1958; Wanxian, 1200m 30 September 1994 (4 males, 6 females); Yunnan: Yunlong, 2500m 24 June 1981 (1 female).

Taxonomic note: see in description of *C. aterrima* Sack.

Cheilosia (s. str.) *matsumurana* Shiraki

Cheilosia matsumurana Shiraki, 1930: 316 (Japan, Hokkaido, Josankei)

First record for China; previously known from Russian Far East and Japan. – Material examined: China. Sichuan: Wenchuan, 1900m 27 July 1983 (1 male).

Cheilosia (*Floccocheila*) *motodomariensis* Matsumura

Cheilosia motodomariensis Matsumura, 1916: 239 (Russia, Sachalin)

This species was previously known from Jilin provinces Changbai shan (Barkalov & Cheng 1998). – Material examined: China: Nei Mongol province, Minamino 22 July 1937; Liangcheng, August 1980 (1 male, 1 female); Beijing: Beihua shan, 1900m 24 August 1963; Xiaolongmen, July 1997 (3 males, 7 females); Hebei: Pingquan, 1250-1730m 30 July 1983, 29 July 1985; Xinglong, 1900m 21 August 1973, 17 July 1987 (3 males, 4 females); Shanxi: Foping, 1900-2100 24 July 1981; Huoxian, 1550 m 31 July 1972 (1 male, 1 female); Sichuan: Emei shan, 1800-2000m 20 August 1957, 7 August 1986 (1 male, 1 female).

Cheilosia (*Floccocheila*) *neversicolor* Barkalov

Cheilosia neversicolor Barkalov, 1999: 78 (China, Sichuan, Tatsienlu)

The male of this species was described from Sichuan province.

Female nov.

Description: H e a d : Face broad, black, densely grey pollinose, with microtrichia laterally, without distinct hairs, central knob small (fig. 3); parafacials very broad, almost equal to the width of basoflagellomere, black with dense grey pollinosity and very long yellow pile; cheeks very high, almost one half of the width of an eye, covered with dense grey pollinosity and long yellow pile; frons broad, distinctly broadened anteriorly with 3 longitudinal furrows, covered with dense, grey pollinosity and long, dense, erect yellow pile; lunula narrow, brown, antennal pits separated; scape and pedicel black, basoflagellomere rounded, brown, with dense brown pollinosity; arista almost bare (fig. 3); eyes covered with long, dense, black pile; vertex slightly swollen black pilose anteriorly and yellow pilose posteriorly; ocellar triangle equilateral.

T h o r a x : Postpronotum black with grey pollinosity. Scutum and scutellum black, matt, covered with long, dense, erect yellow pile, with some black pile on sides; hind margin of scutellum without bristles. Pleurae grey pollinose and long yellow pilose; upper and lower patches of hairs on katapisternum broadly connected anteriorly. Legs mainly black, fore trochanter, tips of femora, basal and apical ends of tibiae brownish; fore and mid femora long yellow pilose dorsally and black pilose on apical half vent-

rally; hind femur yellow pilose. Haltere brown with black knob. Wings comparatively broad, yellowish in basal half, brownish along transverse veins; inner angle between M1 and R4+5 90°.

A b d o m e n : short, broad, distinctly broader than mesonotum, black with tergites III-IV shining, tergites I-II densely grey pollinose; covered with long, dense, erect, yellow pile on tergites I-II, black pile on anterior half of tergite III and reddish pile elsewhere.

Material examined: China. Xizang (Tibet): Gyirong, 3300-3800m, 3-5 August 1975 (5 males, 4 females).

Cheilosia (Taeniochilosia) nigripes (Meigen)

Syrphus nigripes Meigen, 1822: 282 (Austria: "Donnerskirchen, Leithageb.")

First record for China; previously known from moderate zone of Palaearctic. – Material examined: China. Jilin: Kaolintze 13-17 July 1940 (3 males, 1 female).

Cheilosia (Eucartosyrphus) nuda Shiraki

Chilosia nuda Shiraki, 1930: 308 as subspecies of *C. josankeiana* (Shiraki) (Japan, Hokkaido, Sapporo)

First record for China; previously known from the southern part of the Russian Far East, Northern Korea and Japan. – Material examined: China. Jilin: Kaolintzi 2 July 1940 (1 female).

Cheilosia (s. str.) *occulta* Barkalov

Cheilosia occulta Barkalov, 1988: 103 (Russia, environs of Yakutsk town)

First record for China; previously known from Asia (from Polar parts of the Urals to the Russian Far East). – Material examined: China. Hebei: 15 May 1931 (2 males).

Cheilosia (s. str.) *parachloris* Hervé-Bazin

Chilosia parachloris Hervé-Bazin, 1929: 96 (China, "Chinkiang, Hsia-shu")

This species was previously known only from the type locality. – Material examined: China. Jiangsu: Nanjing 7 May 1919, 24 April-5 May 1935 (2 males, 14 females); Zhejiang: Tianmu shan 2-7 1919, 19 April-2-5 May 1937; Qinyuan, 1300 m 18 April 1994; Mogan shan 23 April 1936 (14 males, 15 females); Hubei: Guangshui April 1957 (1 female).

Cheilosia (s. str.) *pagana* (Meigen)

Syrphus paganus Meigen, 1822: 292 (Germany: "aus hiesiger Gegend" [= Deutschland, Stolberg])

First record for China; previously known from the temperate zone of the Palaearctic and western parts of the Nearctic. – Material examined: China. Jilin: Hunjiang, 1000m 6 August 1983 (1 female).

Cheilosia (s. str.) *proxima* (Zetterstedt)

Eristalis proximus Zetterstedt, 1843: 792 (Sweden: "in Ostrogothia...; in Häradshammar")

First record for China; previously known from the temperate zone of the Palaearctic.
– Material examined: China. Xinjiang: Tianshan, 1600m 11 June 1960 (1 male).

Cheilosia (*Eucartosyrphus*) *scutellata* Fallén

Eristalis scutellata Fallén, 1817: 55 (Sweden: "Esperöd Scaniae, Årås Wermlandiae").

First record for China; previously known from the temperate zone of the Palaearctic.
– Material examined: China. Heilongjiang: Wuchang 14 July 1970 (1 male); Beijing: Xi-aolongmen July 1997 (2 females); Nei Mongol: Liangcheng August 1980 (1 male).

Cheilosia (s. str.) *sera* Barkalov

Cheilosia sera Barkalov, 1999: 81 (China, Sichuan province, West of Chetu Pass, near Tatsienlu)

The male of this species was described from Sichuan province.

Female nov.

Description: **H e a d** : Face moderate in width, almost parallel sided, black, shining with fine grey pollinosity, without pile, central knob moderate in size, not very broad (fig. 4); parafacials comparatively broad, in broadest part almost equal to one half of the width of basoflagellomere, black, brownish in lower part, covered with dense grey pollinosity and short, white pile; cheeks narrow, covered with dense grey pollinosity and yellow pile. Frons comparatively broad, on the level of antennal base approximately equal to one third of head width (see anteriorly), near eyes with 2 triangular spots of grey pollinosity, on anterior half covered with erect and semi-erect yellow pile, on posterior half with erect black pile; occipital triangle equilateral, shining; lunula yellow or brownish, antennal pits distinctly separated; antennae black, basoflagellomere rounded, arista black, bare (fig. 4). Eyes densely, comparatively long, yellow pilose.

T h o r a x : Postpronotum black with brownish rim, grey pollinose. Scutum black with fine punctuation, shining with grey pollinosity or with grey pollinosity only on sides, covered with short, erect, yellow pile; postalar callus brownish; hind margin of scutellum without bristles. Pleurae black with grey pollinosity and short erect and semi-erect yellow pile; katepisternum with broadly separated patches of hairs. Legs mainly yellow, only mid and hind coxae, tips of hind femur and tibia, apical segment of anterior tarsi and entire hind tarsi black or brown. Haltere yellow. Wings yellowish with yellow veins, inner angle between M1 and R4+5 almost equal to 90°.

A b d o m e n : narrow, narrower than mesonotum, black with grey pollinosity, pile erect on sides and depressed on middle part of abdomen.

S i z e : 9.3-9.8 mm.

Material examined: China. Qinhai: Yushu, 3800-4200m 16 June-20 July 1964 (4 males, 6 females); Sichuan: Xiangcheng, 3900m 4 July 1982; Garze, 3600m 1 July

1983; Barkam, 3800m 22-25 June 1976 (4 females); Xizang: Zhag'yab, 3600 m 5 July 1976; Zogang 30 June 1976 (4 females).

Cheilosia (s. str.) *sini* Barkalov & Cheng

Cheilosia sini Barkalov & Cheng, 1998: 315 (China, Sichuan, Emei shan)

This species was previously known from Sichuan province. – Material examined: China. Hubei: Xinshan, 700-1400m 7-11 May 1994, 8-9 September 1994 (4 males, 1 female); Yunnan: Yunlong, 2500m 22 June 1981 (1 female).

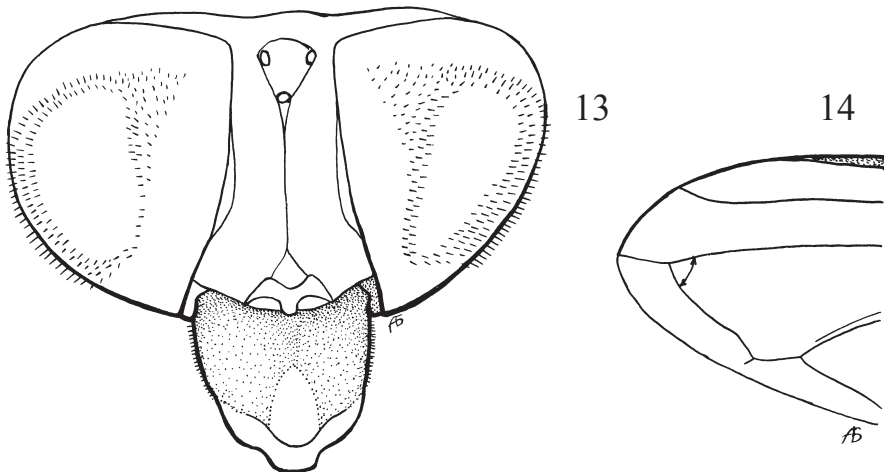
Cheilosia (s. str.) *suspecta* Barkalov & Cheng

Cheilosia suspecta Barkalov & Cheng, 1998: 317 (China, Sichuan, Xiangcheng).

The male of this species was described from Sichuan province.

Female nov.

Description: H e a d : Face narrow, greatly protruding, black, shining, fine pollinose, in lower part with microtrichia, without distinct hairs; parafacials comparatively narrow, black in upper part and brown in lower part, grey pollinose, short white pilose; cheeks narrow, brown in upper part and black in lower part, grey pollinose, long white pilose; frons narrow, distinctly narrower in posterior part, black, shining, in anterior part near eye grey pollinose (fig. 13); lunula yellow-brown; antennal pits separated; antennae: scape and pedicel black, basoflagellomere rounded, mostly yellow, but dark dorsally, arista black, distinctly pilose; eyes densely, comparatively long, brown pilose; occipital triangle equilateral, black pilose.



Figs 13-14: *Cheilosia suspecta*. – 13. Head of female (dorsal view); – 14. Wing.

T h o r a x : Postpronotum black, shining. Mesonotum shining, black, comparatively coarsely punctuated, with dense, adpressed yellow pilosity; with black bristles on lateral margins; pleurae shining on katapisternum, hind swollen part of anepisternum and on anepimeron, densely grey pollinose otherwise; covered with white pile; katapisternum with broadly separated patches of hairs. Legs: coxae grey pollinose, fore coxae brown, mid and hind coxae black; femora black, narrow brown at the apex, tibiae yellow on basal 1/3 and at the apex, black medially; fore and hind tarsi black dorsally, apices of the two basal segments yellowish, the three basal segments of the mid tarsi yellow, the two apical segments black. Haltere yellow with dark knob; calypters yellow. Wing brownish, inner angle between M1 and R4+5 slightly less than 90° (fig. 14).

A b d o m e n : oval, broadest at end of tergite II, shining laterally, grey pollinose medially; erect white pile on sides of tergites I-III and adpressed black pile elsewhere.

S i z e : Body 8.8 mm, wing 8.3 mm.

Material examined: Gansu province, Zhouqu, 2350-2400m 5-17 July 1998 (1 male, 4 females).

Cheilosia (s. str.) *velutina* Loew

Cheilosia velutina Loew, 1840: 33 (Poland, "Poznan")

This species was previously known from the temperate zone of the Palaearctic. In China it was earlier recorded from Jilin and Sichuan provinces (Barkalov & Cheng 1998). – Material examined: Gansu province, Zhugqu, 2400m 17 July 1999 (1 female); Xinjiang province, Fuyun, 1200m 14 July 1960; Zhaosu, 2400m 2 August 1978 (1 male, 1 female); Hebei province 6-9 July 1930 (2 males); Shanxi province, Liuba, 1800m-2500m 20 July 1998 (1 male, 1 female); Xizang province, Jomda, 3400m 9-29 July 1976 (2 males, 5 females).

Cheilosia (*Floccocheila*) *versicolor* Curran, 1929

Cheilosia versicolor Curran, 1929: 496 (China: "near Mupin, Szechuan")

This species was previously known from Sichuan province (Barkalov & Cheng 1998). – Material examined: Qinhai province, Yushu 3700m 10 July 1964 (2 males); Sichuan province, Emei shan, 3000-3200m 24 June-24 August 1957; Wenchuan, 2500-2800m 6-9 August 1983; Kangding, 3350m 6 September 1982; Garze, 3300m 4 September 1983; Nanping, 2850-3000m 4 September 1983 (15 males, 40 females); Yunnan province, Deqing, 3200-4200m 23-30 July 1982; Zhongdian, 4000m 15 August 1981 (5 males, 13 females); Xizang province, Zhangmu, 3300m 7 July 1975; Markam, 3230m 30 June-22 July 1961 (4 males, 8 females).

Cheilosia (s. str.) *victoria* Hervé-Bazin

Cheilosia victoria Hervé-Bazin, 1930: 44 (China, "à Kou Ling")

This species was previously known only from the type specimens. – Material examined: Gansu province, Kangxian, 1450-2250m 8-15 July 1998 (2 males); Shanxi province, Liuba, 1500-1650m 22 July 1998 (1 female); Jiangsu province, 7-18 September 1918 (1 male, 1 female); Jiangxi province, Kuling 7-16 September 1934 (3 males); Sichuan province, Wenchuan, 1920m 23-27 July 1983 (1 male, 1 female).

Cheilosia (*Eucartosyrphus*) *zinovievi* Stackelberg

Cheilosia zinovievi Stackelberg, 1963: 517 (Russia, Amurskaya region, 40 km West of Svobodnyi settlement, Klimoutzy)

First record for China; previously known from the Russian Far East. – Material examined: Heilongjiang province, Erlonghe 24 May 1993 (1 female); Beijing, Badalin 6 April 1982 (2 males).

Cheilosia (*Montanocheila*) *zlotini* Peck

Cheilosia zlotini Peck, 1969: 205 (Kirghizia, Tian-Shan, Ak-Shirak, Pokrovskie syrty)

First record for China; previously known from Kirghizia. – Material examined: Qinhai province, Hohxil, 5100-5200m 21 July 1990 (1 male).

Conclusion

Including those mentioned in the present paper 44 *Cheilosia* species are recorded from China. In addition to these, there are 35 species new to science whose descriptions are in preparation from this territory. Hence 79 species of the genus *Cheilosia* are at the present known from China. Considering that such a large number of new species have been found in a relatively small amount of material, it is realistic to predict that in the future the number of species known from China should reach 120-130 taxa. It is already clear that, within the territory of China, there is a major concentration of species diversity in the mountains of Sichuan province. Of the 79 known species, 24 (30,4 %) are recorded from this mountainous province.

Taking into consideration the degree of study of the territory of China and the fact that, at the southern limits of the range of the genus, *Cheilosia* species occur only in high mountains, further new species can be expected from, in particular, the provinces Yunnan, Guizhou, Quinghai, Sichuan, Xizang Zizhiqu and Xinjiang Uygur Zizhiqu.

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