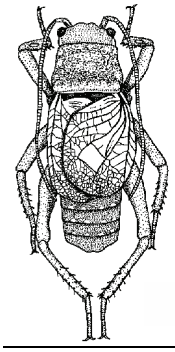

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THE EASTERN PALAEARCTIC PARASITIC WASPS OF THE GENUS *SPILOMICRUS* WESTWOOD, 1832 (HYMENOPTERA: DIAPRIIDAE)

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Summary. The review of 16 species of the genus *Spilomicrus* Westwood, 1832 from Eastern Palaearctic is given and key to species is provided. Four new species are described and illustrated: *S. bicarinatus* Chemyreva, **sp. n.** (Russian Far East, Japan, South Korea), *S. metopotrypus* Chemyreva, **sp. n.** (Russian Far East, Japan, South Korea), *S. tentorialis* Chemyreva, **sp. n.** (Russian Far East, Japan), *S. transversus* Chemyreva, **sp. n.** (Russian Far East, Japan). *Spilomicrus formosus* Jansson, 1942 is recorded for the first time from the Russian Far East.

Key words: Hymenoptera, Diapriidae, Spilomicrini, taxonomy, new species, new record, key, Russian Far East, Japan, South Korea.

В. Г. Чемырева. Паразитические наездники рода *Spilomicrus* Westwood, 1832 (Hymenoptera: Diapriidae) Восточной Палеарктики // Дальневосточный энтомолог. 2018. N 357. С. 1-20.

Резюме. Даны обзор и определительная таблица 16 видов рода *Spilomicrus* Westwood, 1832 Восточной Палеарктики. Описаны новые для науки 4 вида: *S. bicarinatus* Chemyreva, **sp. n.** (Дальний Восток России, Япония и Южная Корея), *S. metopotrypus* Chemyreva, **sp. n.** (Дальний Восток, Япония и Южная Корея),

S. tentorialis Chemyreva, **sp. n.** (Дальний Восток и Япония) и *S. transversus* Chemyreva, **sp. n.** (Дальний Восток, Япония). Впервые для Дальнего Востока России указывается *Spilomicrus formosus* Jansson, 1942.

INTRODUCTION

The genus *Spilomicrus* Westwood, 1832 comprises more than 170 valid species worldwide 52 of which are recorded in the Palaearctic (Johnson, 1992; Rajmohana, 2006; Hymenoptera Online, 2018). The genus *Spilomicrus* has especially high biodiversity and morphological variety in the south part of the Eastern Palaearctic. Twelve species are recognized in the Eastern Palaearctic: *S. comatus* Chemyreva, 2015, *S. crassiclavis* Kieffer, 1911, *S. formosus* Jansson, 1942, *S. ikezakii* Honda, 1969, *S. kumaonensis* Sharma, 1980, *S. leleji* Chemyreva, 2016, *S. lubomasneri* Chemyreva, 2015, *S. magnus* Kim et Lee, 2016, *S. notaulus* Chemyreva, 2015, *S. nottoni* Chemyreva, 2015, *S. pilosiventris* Chemyreva, 2015, and *S. sergeyi* Chemyreva, 2015 (Honda, 1969; Notton, 1999; Chemyreva, 2015a, b; 2016; Kim & Lee 2016). In the current paper four new species are described and one species is newly recorded from the Russian Far East.

MATERIAL AND METHODS

Examined material including the type specimens are deposited in the collection of Zoological Institute of the Russian Academy of Sciences, St Petersburg, Russia (ZISP), some paratypes – in the Canadian National Insects Collection, Ottawa, Canada (CNCI) and the National History Museum, London, U.K. (BMNH). The morphological terminology and abbreviations used following Masner & Garcia (2002), Yoder (2004), Chemyreva and Kolyada (2013), Chemyreva (2015a) and the Hymenoptera Anatomy Ontology (Yoder *et al*., 2010). The measurements follow to Yoder (2004). The measurements of venation are shown on Fig. 9, measurements of propodeum and clypeus on Figs 23, 34, respectively. The following abbreviations are used in the descriptions of morphology: A1–A13 – antennal segments; OOL – the shortest distance between posterior ocellus and compound eye; POL – the shortest distance between posterior ocelli; S, T – metasomal sterna and terga respectively. The following acronym for the collector is used: SB – S.A. Belokobylskij. All photographs were obtained using a Leica M165 stereomicroscope equipped with a Leica DFC450 camera. Image stacking was performed with Helicon Focus 5.0.

TAXONOMY

Genus *Spilomicrus* Westwood, 1832

Spilomicrus Westwood, 1832: 129.

Type species: *Spilomicrus stigmaticalis* Westwood, 1832, by monotypy.

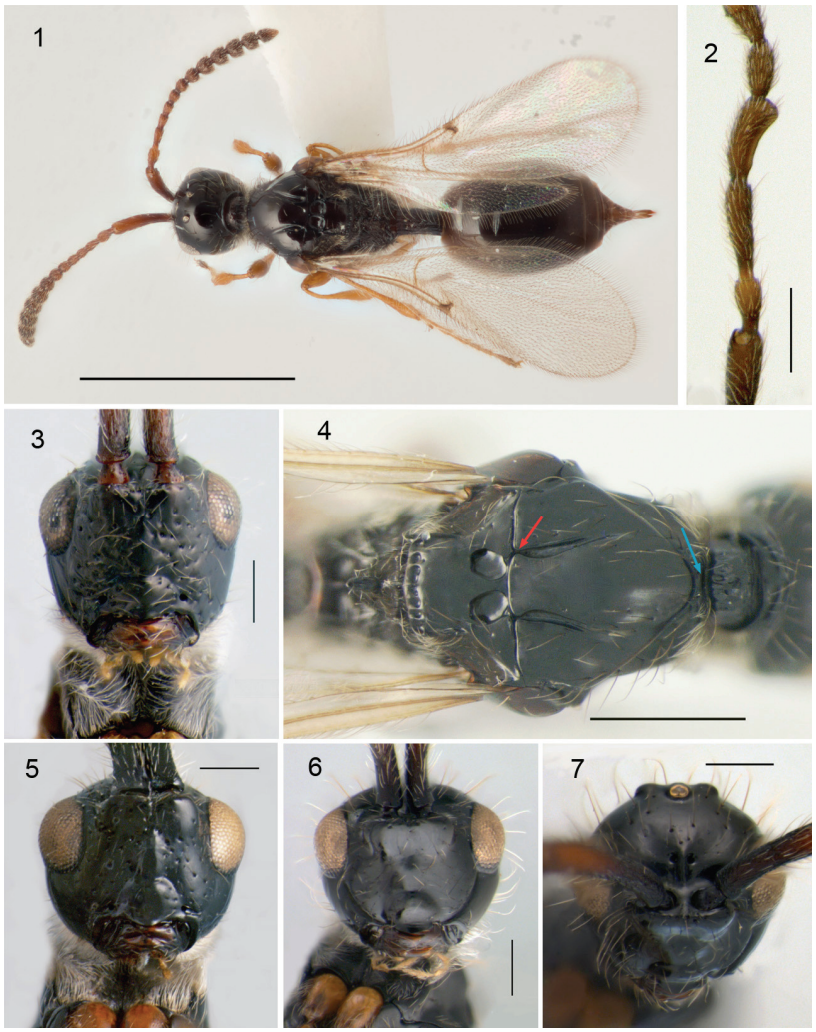
NOTES. All members of this genus are small to medium-sized parasitoids (1.0–4.5 mm) with dark, smooth and shining body. *Spilomicrus* can be recognized using the keys to genera of the Eastern Palaearctic (Kozlov, 1995) and Oriental region (Rajmohana, 2006). Synonymy of the genus follows Johnson (1992) and Notton (2014). The information about host-parasitoid relationships of majority *Spilomicrus* species is absent. The main hosts are the parasitoids of pupae of different Diptera

families, rarely – the larvae of the coleopteran family Staphylinidae (Hoffmeister, 1989; Masner, 1991; Notton, 1999).

Key to the Eastern Palaearctic species

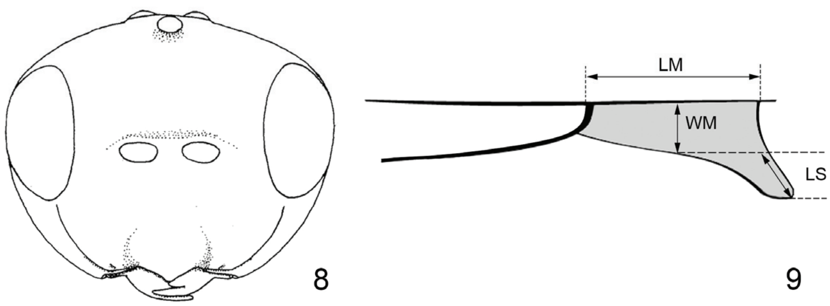
1. Occipital flange crenulate; all legs without trochantelli ……. 2
– Occipital flange smooth; at least fore- and mid-femora with trochantelli …..… 3
2. Side of pronotum with row of foveae along posterior margin; epomia absent; mesopleuron pubescent, sculptured in distal part; entire head densely pubescent, tentorial pits very large; malar sulcus shallow; anterior margin of T2 straight; in lateral view mesoscutum convex; female antenna slender. – Russia (Primorskiy Terr.), Japan (Hokkaido, Okinawa) ……..***S. comatus*** **Chemyreva, 2015**
– Side of pronotum without row of foveae along posterior margin; epomia sharp and strongly projecting; mesopleuron bare and smooth; head not densely pubescent; tentorial pits absent; malar sulcus deep; anterior margin of T2 arcuate; mesoscutum in lateral view flattened; female antenna robust. – Russia (Primorskiy Terr.) ……..……..… ***S. sergeyi*** **Chemyreva, 2015**
3. Anterior margin of T2 with deep lateral groove and dense pubescence; basal and lateral S2 grooves distinct ……... 4
– Anterior margin of T2 smooth and bare; S2 anteriorly smooth ……..… 5
4. Female antenna slender, A7–A13 in dorsal view quadrate or elongate; anterior margin of anterior scutellar pits open, not surrounded anteriorly by edge; posterior part of female S2 with small area of transverse sculpture. – Russia (Primorskiy Terr.), Japan (Hokkaido, Honshu), China (Yunnan), Taiwan, Nepal ……. …… ***S. pilosiventris*** **Chemyreva, 2015**
– Female antenna robust, A7–A13 in dorsal view transverse; anterior margin of anterior scutellar pits close, surrounded anteriorly by edge; posterior part of female S2 smooth. – Russia (Primorskiy Terr.), Japan (Hokkaido, Honshu), China (Yunnan), Taiwan, Nepal ……. ***S. kumaonensis*** **Sharma, 1980**
5. Occipital flange broad ……. 6
– Occipital flange narrow (Figs 1, 26, 29) ……. 9
6. Face smooth (Fig. 6). Malar sulcus present from pleurostomal carina to low margin of eye, deep. Tentorial pits absent. Frons above toruli with two deep pits divided by keel-shaped carina (Fig. 7). – Russia (Primorskiy Terr.), China (Jilin) …… ***S. lubomasneri*** **Chemyreva, 2015**
– Face covered with deep setigerous punctures (Figs 3, 5). Malar sulcus absent. Tentorial pits present. Frons above toruli without pits and keel …… 7
7. Fore wing clear. Pronotal cervical area separated from lateral pronotal areas by ridge (Fig. 4, blue arrow). Lower part of lateral pronotal area separated by horizontal grooves. Notauli connected with transscutal line by groove (Fig. 4 red arrow). Scutellum broadened posteriorly. A4 with keel, without long erect setae. Shape of head subround in lateral view …….....…… 8
– Fore wing maculate. Pronotal cervical area not separated from lateral pronotal areas by ridge. Lateral pronotal area smooth. Notauli not connected with transscutal line by groove. Scutellum not broadened posteriorly. A4 without keel, but with group of long erect setae (Fig. 16). Shape of head rhomboidal in lateral view. – Russia (Primorskiy Terr.), China (Jilin) …….. ***S. nottoni*** **Chemyreva, 2015**

8. Face with sparse long setae (Fig. 5); A8–A13 flattened on ventral side and distinctly thicker than the other flagellar segments, A13 not narrower than A12; male A4 weakly emarginated. – Russia (Primorskiy Terr.), South Korea, Japan (Hokkaido, Honshu, Kyushu) ..…… ***S. notaulus*** **Chemyreva, 2015**
– Face with dense short and long setae; A7–A13 flattened on ventral side and not distinctly thicker than the other flagellar segments, A13 slightly narrower than A12; male A4 not emarginated. – South Korea …. ***S. magnus*** **Kim et Lee, 2016**



Figs 1–7. *Spilomicrus* spp. 1, 2 – *S. ikezaki*; 3 – *S. nottoni*; 4, 5 – *S. notaulus*; 6, 7 – *S. lubomasneri*; 1, 3–7 – female; 2 – A1–A6 of male; 1 – habitus, dorsal view; 3, 5, 6 – face; 7 – frons. Scale bar: 1 – 1.0 mm; 4 – 500 µm; 2, 3, 5–7 – 200 µm.

9. Epistomal sulcus absent, clypeus not convex; clypeal margin medially with a small triangle projection; female antenna with 7–8-segmented clava ..……… 10
– Epistomal sulcus distinct, clypeus convex; clypeal margin straight, without projection; female antennae with 6–5-segmented clava …………………….… 11
10. Antennae with 7-segmented clava, A8–A12 strongly transverse; notauli absent to extending over no more than basal 0.25 of mesoscutum and convergent anteriorly; male A13 no longer than A12. – Europe (Northern, Western, Central), Japan (Honshu) ………………………………….… ***S. crassiclavis*** **Kieffer, 1911**
– Antennae with 8-segmented clava, A8–A12 quadrate to weakly elongate; notauli extending over at last basal 0.35 of mesoscutum and divergent anteriorly; male A13 at last 1.5 as long as A12 ....…………………. ***S. formosus*** **Jonsson, 1942**



Figs 8, 9. *Spilomicrus* spp. 8 – *S. crassiclavis*, face, frontal view (from Notton, 1999); 9 – venation (schematic) (LM – length of marginal vein; WM – width of marginal vein; LS – length of stigmal vein).

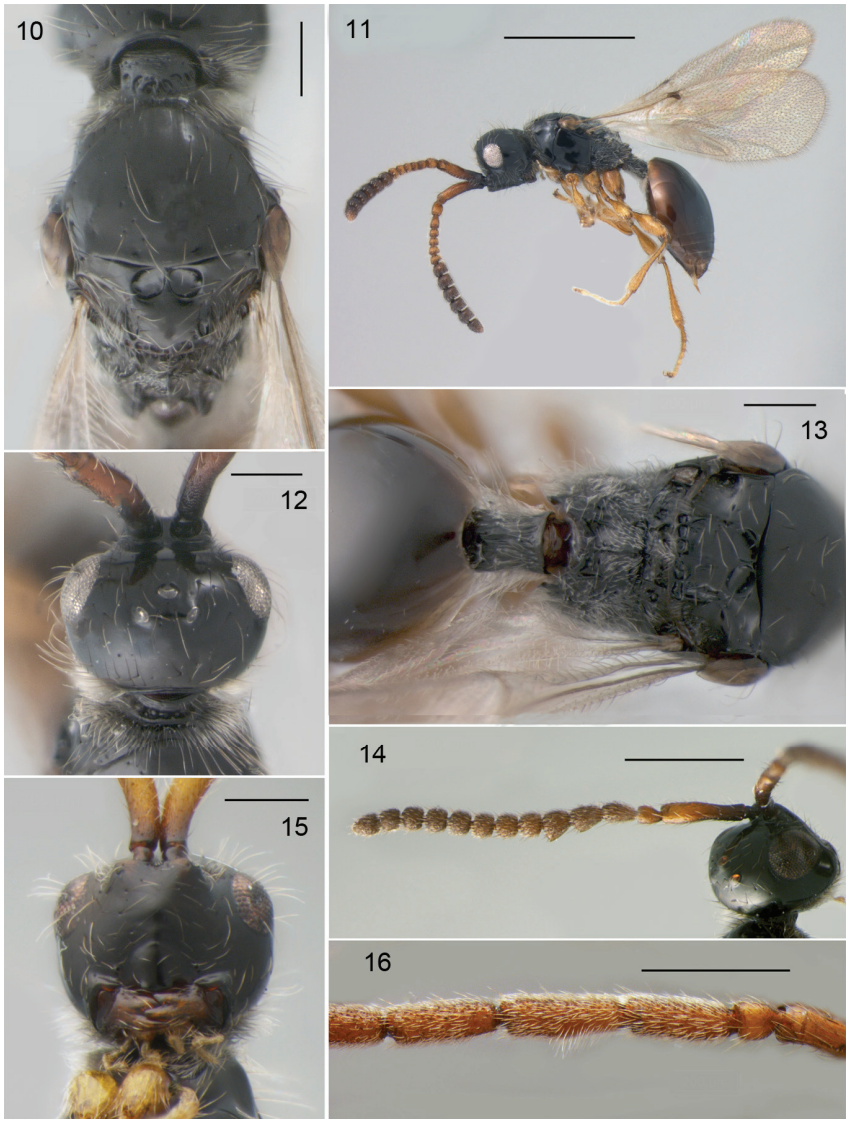
11. Clypeus strongly transverse, three times as wide as height (Fig. 34); propodeum strongly transverse (Fig. 40); all femora of male and female broadened from base (Fig. 35) …………………………………………………… ***S. transversus*** **sp. n.**
– Clypeus rounded, less than two times as wide as high (Figs 15, 19, 26); propodeum less transverse (Figs 13, 23, 33); femora of male and female slender 12
12. Malar sulcus deep and complete; fore wing with basal vein distinct (Fig. 1); anterior margin of S2 without dense setae. [Male and female antennae on the Figs 1, 2]. Japan (Kyushu)…………………………………. ***S. ikezakii*** **Honda, 1969**
– Malar sulcus incomplete or absent; fore wing without basal vein or it nebulous; anterior margin of S2 with dense white setae (Figs 11, 27, 35) . …………….. 13
13. Head and face strongly sculptured; notauli well impressed, broad and extending to third of mesoscutum length. – Russia (Primorskiy Terr.), South Korea, Japan (Hokkaido, Honshu) ……………………………….. ***S. leleji*** **Chemyreva, 2016**
– Head and face smooth; notauli absent ……………………………………….. 14
14. Tentorial pits present (Fig. 26) [*S. bicarinatus* with tentorial pits very small (Fig. 15)]; frons smooth; male A3 about as long as A4 (Figs 14, 30, 32) …… 15
– Tentorial pits absent (Fig. 19); frons with two deep pits devded with keel (Fig. 20); male A3 distinctly longer than A4 (Fig. 22) ……..… ***S. metopotrypus*** **sp. n.**

15. Tentorial pits very small weakly visible (Fig. 15); propodeum with posterior margin deeply arcuate (Fig. 13); female clava abrupt 6-segmented (Fig. 11); A4 and A5 of male with straight keels reaching apex of segments (Fig. 14), A6–A12 subquadrate …….. ***S. bicarinatus*** **sp. n.**
– Tentorial pits large (Fig. 26); propodeum with posterior margin weakly arcuate (Fig. 33); female clava non-abrupt (Figs 27, 29); several setae protrude from under sintergitee (Fig. 33); A5 of male without keels, A4 with erect keel reaching 0.8–0.9 of its length (Fig. 30); A5–A12 prolong (Fig. 32) … ***S. tentorialis*** **sp. n.**

Spilomicrus bicarinatus **Chemyreva, sp. n.**
Figs 10–15

TYPE MATERIAL. Holotype – ♀, **Russia**: Primorskiy Terr., 15 km E from Chernigovka, 20.VII 1991, S. Belokobylskij (ZISP). Paratypes. **Russia**: Primorskiy Terr.: 20 km E from Ussuriysk, 7.IX 1983, 1♀, Budris (ZISP); vicinity station of Khasan, 29.VIII 1988, 1♀, SB (ZISP); Kamenushka, 31.VIII 1988, 1♀, 1♂, SB (ZISP); 20 km SW Krounovka. 4–5.VIII 1991, 3♂, SB (ZISP); vicinity of Spassk-Dalniy, 10–27.VII 1991, 6♀, 4♂, SB (ZISP); same locality, 9.VII–7.VIII 1993 and 24–25.VIII 1981, 3♀, 7♂, SB (ZISP); vicinity of Anisimovka, 10.VIII 1991, 4♂, SB (ZISP); 15 km E from Chernigovka, 20.VII 1991, 4♀, 9♂, SB (ZISP, BMNH); 15 km E from Dmitrievka, 21.VII 1991, 1♀, 1♂, SB (ZISP); Ussuriyskiy District, Gornotayozhnoye, 43°66′N, 132°25′E, 7–8.VIII 1999, 1♀, M. Michailovskaya (CNCI); Ussuriysk Nature Reserve, 31.VII–5.VIII 1991, 6♀, 14♂, SB (ZISP, BMNH); same locality, 28–29.VIII 1982, 1♀, V. Tobias (ZISP); same locality, 3.VIII 1961, 1♀, Shuvakhina (ZISP); 15 km SSE from Nezhino, 16–18.VII 1993, 2♀, 2♂, SB (ZISP); 30 km SE from Ussuriysk, 17–19.VII 2001, 1♀, 13♂, SB (ZISP); Lazo Nature Reserve, 22–24.VII 1993, 5♂, SB (ZISP); same locality, VII 2007, 11♀, 1♂, K. Makarov (ZISP); same locality, 26.VII–8.VIII 1972, 1♀, 1♂, M. Kozlov (ZISP); vicinity of Vladivostok, 30.VII 2001, 1♀, SB (ZISP). Sakhalin Prov.: Kunashir Island, promontory Alekhino, 19–21.VIII 2009, 1♀, 1♂, I. Melnik (ZISP). **Japan**: Hokkaido Island: Hidaka Mts., above Pyo Tan, Riv. Satsunai, 400 m, 12–14.VIII 1996, 7♀, 6♂, L. Masner (CNCI); Sapporo, Jozankei, 350 m, VIII 1989, 1♀, K. Maeto & M. Sharkey (CNCI). Honshu Island: Tokyo, Inagishi, 28.VII 1980, 3♀, 1♂, C. Yoshimoto (CNCI); Tochigi Pref., Hikinuma, Shiobara, 21.VIII, 2.IX, 20.IX and 21.IX 1985, 1♀, 4♂, K. Takahashi & T. Truck (CNCI); Aichi Pref., Narai, Toyota, 15–22.VII, 30.VII–7.VIII, 8–17.VIII, 30.VIII–5.IX, 13–19.IX and 6–12.IX 1990, 18♀, 1♂, K. Yamagishi (CNCI); Aichi Pref., Douzuki, Obara, 15–22.VII, 23–29.VII and 6–12.IX 1990, 9♀, K. Yamagishi (CNCI); Ibaraki Pref., Tsukuba, NIAES, 8–15.VII, 26.VI–10.VII, 14–25.VII, X 1989 and Tsukuba, 800 m, 25–31.VII, 18.IX–2.X 1989 and Tsukuba, Expo Site, 5–11.IX 1989, 14♀, M. Sharkey (CNCI); Ibaraki Pref., Tsuchiura, 24–31.VII, 1–8.VIII, 29.VIII–6.IX, 11–19.IX, 19.IX–2.X, 27.IX–3.X, 2–16.X, 16–27.X 1989, 70♀, 7♂, M. Sharkey (CNCI); Aomori Pref., Towadako, Yakeyama nr. Tsuta riv. 250 m, 40°35′N, 140°59′E, 22–23.VIII 1996, 3♀, 1♂, L. Masner (CNCI); Iwate Pref., Iwaizumi, Hitsurori, 770 m,

11–17.VIII 1991, 2♀, A. Smetana (CNCI). Shikoku Island, Ehime Pref., Ishizuchi Mt. National Park, 11–17.VIII 1980, 1♀, S. & J. Pek (CNCI). Kyushu Island: Fukuoka Pref., Kitakyushu, 12–20.V 1984, 1♂, V. Sugonjaev (ZISP); Fukuoka Pref., Mt. Tachibana, 15–21.VII 1979, 22–28.VII 1979, 11–17.VIII 1991, 17.VIII



Figs 10–16. *Spilomicrus* spp. 10–15 – *S. bicarinatus* sp. n.; 16 – *S. nottoni*; 10–12, 15 – female; 14, 16 – male; 10, 13 – mesosoma, dorsal view; 11 – habitus, lateral view; 12 – head, dorsal view; 15 – face. Scale bar: 11 – 1.0 mm; 14, 16 – 500 μm; 10, 12, 13, 15 – 200 μm.

1992, 19♀, K. Yamagishi (CNCI). **South Korea**: Mt. Sudo, 600 m, 24.VIII 1990, and Mt. Sudo-San, 400 m, 23.VIII 1990, 2♂, K. Yamagishi (CNCI); Jirisan, Hamyang-gun, Macheon-myon, Samjeon-li, 700 m, 35°20.55′N, 127°38.21′E, 15.IX– 13.X 2002 and 24.VIII–15.IX 2003, 3♂, P. Tripotin (CNCI); Chungbuk Yeongdong-gun, Sangchon-myon, Mulhan valley, Gojadong, 4.VIII–24.IX 2002, 3♀, P. Tripotin (CNCI).

DESCRIPTION. Female (holotype). Body length 2.5 mm. Fore wing length 2.0 mm. Antenna length 2.5 mm. Body mainly black; palpi yellow; tegulae, legs and A1–A7 yellowish brown; mandibles, A8–A13 dark brown.

Head in dorsal view as wide as long, narrower than width of mesosoma (26:28), in lateral view higher than long (25:21). Face, frons, genae and vertex with scattered setigerous punctures and long setae. Face and frons above base toruli smooth. Tentorial pits distinct, very small. Malar sulcus absent. Clypeus circular, as high as wide, weakly convex. Mandibles long, overlapping, bidentate, upper tooth shorter than lower. Pleurostoma distance 1.6 times shorter than width of head. Eye oval (12:10), their height 3 times shorter than height of head, with a few long setae. Malar space as long as height of eye. Ocelli oval, triangle, LOL 1.5 times longer than diameter of anterior ocellus (Fig. 12). POL shorter than OOL (10:14). Occipital flange narrow and smooth. Postgena cushion dense.

Antannae. A1 cylindrical, slightly curved, covered with fine coriaceous sculptured and numerous long setae; its apical rim with two projected lamellae overlapping base of A2. A2 compressed, in lateral view elongate (9: 6), subrectangular in dorsal view tapering at base. Antenna with abrupt 6-segmented clava. A8–A13 with MGS brush and flattened on ventral side. In lateral view, connection between A7–A13 located dorsally (Fig. 11). A13 without ventral pit. Ratios of length to width of A1–A13 in dorsal view: A1 28:6; A2 7:5; A3 7:4.5; A4 5:4.5; A5 4:4.5; A6 5:5; A7 5:5.5; A8 6:7.5; A9 6:8.5; A10 6:8.5; A11 6:8.5; A12 6:7.5; A13 8:6.5.

Mososoma in lateral view longer than high (37:23); in dorsal view, longer than wide (37:25). Neck bare, with deep longitudinal grooves. Pronotal cervical area pubescent, pronotal cushion dense (Figs 10, 12). Side of pronotum smooth. Anterior incision of mesopleuron without setae inside it, small and deep. Propleuron smooth, with short silvery pilosity. Mesopleuron smooth, shining and bare, with one longitudinal keel under tegula; sternaulus absent. Ventral side of mesopleuron pubescent with short pale setae. Acetabular carina sharp, prominent, no shifted posteriorly or anteriorly in its medial part; postacetabular sulcus absent. Mesodiscriment present but unvisibl under pubescence. Mesopleural epicoxal carina present only laterally. Mesopleural epicoxal sulcus and carina on ventral side not developed. Mesonotum wider than long (35:33), with a few long setae. Notauli and humeral sulcus absent. Scutellum with two large circular anterior scutellar pits, broad and long lateral scutellar pits and numerous small posterior scutellar pits (Figs 10, 13). Axillar depression poorly pubescent and smooth. Metascutellum pubescent and coarsely sculptured, with weakly projecting median and one lateral keels, which connected by transverse keel. Propodeum entirely coarsely rugose, with pale pilosity, transverse (28:13), with posterior margin in dorsal view arcuate (Fig. 13). Median propodeal keel projecting into not high spine directed upward. All legs with delimited trochantelli, slender.

Fore wings clear, longer than wide (14: 5). Marginal vein twice longer than wide. Stigmal vein shorter than width of marginal vein. Submarginal vein tubular, sclerotized. Costa and basal veins weakly sclerotized.

Metasoma. Petiole cylindrical, elongate (15:11), completely with not deep longitudinal grooves, poorly pubescent dorsaly and more denselly ventrally. T2 with a few short sparse setae and fine micropunctures medially at distal margin. T3–T5 with fine punctuation and row long erect setae. T5 laterally weakly expanded without additional setae. T6 small, T7 pointed. S2 smooth with dense white cushion at anterior margin; its posterior surface and surface of S3–S5 with scattered setae. Apical sternite covered with fine punctuation and numerous setae.

VARIATION. Body length 2.0–2.9 mm. Whole body black or abdomen and propodeum reddish brown. A3 equal to weakly longer than A2. Width of A9–A12 equal each other or A8–A11 subequal or A9–A11 such only. A4–A6 elongated to weakly transverse. Petiole as long as wide to twice longer than wide.

MALE. Body length 1.3 – 2.7 mm. Similar to female, but differs mainly in antennal structures and petiole proportions. Eyeas high as half of head high. Antenna yellowish brown, scape and pedicel similar to female. A4 and A5 broadened apically, with straight keels extending from base to apex of segments. Ratios of length to width of A1–A13 in dorsal view: A1 25:6; A2 8:5; A3 11:5.5; A4 9:6; A5 8:7; A6 7:6; A7 7:6; A8 7:6; A9 7:6; A10 7:6; A11 7:6; A12 6:6; A13 10:5.5. A3–A13 of many specimens more elongate. Length of A3=A4 to A3 distinctly longer; A4=A5 to A4 distinctly longer. Petiole elongated (11:5). Apical sternit covered with coarse punctuation.

DIAGNOSIS. This new species differs from the all Palaearctic species by the combination of these features: length of body 1.3–2.9 mm, notauli and maral sulcus absent, tentorial pits very small, antenna of female with abrupt 6-segmented clava, male A4 and A5 with keels, posterior margin of propodeum deeply arcuate and petiple short. *S. bicarinatus* is most similar to *S. integer* Thomson, 1858 from which it can be distinguished by 6-segmented abrupt clava (5-segmented in *S. integer*); malar sulcus or trace of it absent (present in *S. integer*); tentorial pits present (absent in *S. integer*); male A4 and A5 with keels, subequal (Fig. 14) (only A4 with keel in *S. integer*, A4 distinctly longer than A5).

DISTRIBUTION. Russia (Primorskiy Terr., Kunashir), Japan (Hokkaido, Honshu, Kyushu, Shikoku), South Korea.

ETYMOLOGY. The name refers to the well developed two keels on male A4 and A5.

Spilomicrus metopotrypus **Chemyreva, sp. n.**
Figs 17–25

TYPE MATERIAL. Holotype – ♀, **Russia**: Primorskiy Terr., 30 km NW from Spassk-Dalniy, 24–25.VIII 1981, S. Belokobylskij (ZISP). Paratypes. **Russia**: Primorskiy Terr.: Lazo Nature Reserve, 18 km SE Lasorevskiy, 25–26.VIII 2006, 1♀, SB (ZISP); Anisimovka, 29.VIII 2001, 1♀, SB (ZISP); vicinity of Spassk-Dalniy, 19–23.VIII 1987, 1♂, SB (ZISP). **Japan**: Hokkaido, 40 km S Sapporo, Shikotsuko Lake, 4.IX 1999, 1♀, SB (ZISP). **South Korea**: Mt. Sudo, 500 m, 36˚50′N, 125˚00′E, 16–19.IX 1989, 1♀, K. Yamagishi (CNCI).

Figs 17–25. *Spilomicrus metopotrypus* sp. n. 22–24 – male; 17–21, 25 – female; 17 – mesosoma, dorsal view; 18 – habitus, lateral view; 19 – face; 20 – frons; 21 – head, dorsal view; 22 – antennae; 23 – mesosoma and petiole, dorsal view; 24 – A1–A5 of male; 25 – female antennae. Scale bar: 18 – 1.0 mm; 22, 23, 25 – 500 μm; 17, 19–21, 24 – 200 μm.

DESCRIPTION. Female (holotype). Body length 3.3 mm. Fore wing length 3.0 mm. Antenna length 1.7 mm. Colour. Body mainly black; legs, venation, tegula, anterior part of A1 and A2–A8 amber; teeth of mandible, posterior parts of A1 and antennal segments A9–A13 dark brown; palpi yellow.

Head in dorsal view transverse (35:30) and narrower than mesosoma (35:42), in lateral view higher than length (35:30). Head smooth and shine covered with scattered setigerous punctures and long setae. Tentorial pit absent. Malar sulcus absent (Fig. 19). Clypeus convex, semicircular, small, transverse (9:6). Mandibles weakly overlapping, bidentate: upper tooth shorter than lower. Ratio of eye height to head height (16:30), oval (16:12), with a few long setae; malar space shorter than eye height (7:16). Ratio of pleurostoma distance to width of head 20:31. Front above toruli with two deep pits (Fig. 20).Ocelli oval, LOL weakly longer than width of front ocellus (Fig. 21). POL shorter than OOL (5:7). Occipital flange narrow without sculpture. Postgenal cushion dense.

Antenna with non-abrupt clava (Fig. 25). Scape cylindrical, curved, broadened anteriorly, covered with fine coriaceous sculpture and numerous long setae. Apical rim of A1 with two small indistinct lamellae. A2 compressed, in lateral view tapering at base. A8–A13 distinctly flattened on ventral side with MGS brush. In lateral view, connection between A6–A13 situated dorsaly. A13 with ventral pit. Ratios of length to width of A1–A13 in dorsal view: A1 35:9; A2 10:7; A3 12:6; A4 9:6.5; A5 9:7; A6 9:8; A7 9:8.5; A8 9:10; A9 10:11; A10 9:11; A11 9:11; A12 9:10; A13 10.5:8.

Mesosoma in lateral view longer than high (55:33); in dorsal view, longer than wide (55:38). Neck bare, with deep longitudinal grooves. Cervical pronotal area pubescent; pronotal cushion dense. Lateral area of pronotum smooth. Propleuron covered with short dense pubescence. Mesopleuron smooth, shining and bare laterally, with one longitudinal groove under tegula and without sternaulus. Ventral side of mesopleuron smooth and setose. Anterior incision of mesopleuron pubescent. Acetabular carina sharp, strongly prominent and dislocated posteriorly in medial part; not disturbed medially. Postacetabular sulcus absent. Mesodiscriment moderately deep. Mesopleural epicoxal carina developed only laterally; mesopleural epicoxal sulcus and carina on ventral side absent. Mesoscutum convex wider than length (33:25). Notauli absent. Humeral sulcus narrow and shallow anteriorly. Mesoscutum, axilla and scutellum with a few scattered setigerous punctures and setae, smooth and shine. Scutellum flattened with two large circular anterior scutellar pits. Axillar depression pubescent and smooth. Lateral scutellar pits large, broad and long. Four posterior scutellar pits large not deep. Dorsellum pubescent with coarse sculptured; median and one lateral keels of dorsellum weakly projecting. Propodeum narrowed posteriorly, transverse (21: 13). Median propodeal keel projecting into high not sharp spine directed upwards (Fig. 18); entire propodeum coarse rugose, with pale pilosity and several longitudinal irregularly keels. Posterior margin of propodeum in dorsal view weakly arcuate (Fig. 23). All legs slender with trochantelli.

Fore wings clear. Marginal vein elongated (7:3); stigmal vein weakly longer than width of marginal. Submarginal vein and costa tubular, sclerotized. Basal vein nebulous. Ratio largest width to length of fore wing 15:35.

Metasoma. Petiole cylindrical, elongated (16:10), with irregular longitudinal keels and long setose on ventral and lateral sides, dorsal side bare. T2 with short sparse setae without micropunctures. T3–T5 bare with a few long setae. T5 expanded laterally. T6 small, T7 pointed, with a few setigerous punctures. S2 smooth with dense pale cushion at anterior margin; its posteriot surface with scattered setae. S3–S5 with dense punctuation and one row of long setae. Apical sternite with dense punctation and long setae apically.

VARIATION. Body length 2.6–3.3 mm. Head equal or wider than mesosoma. Petiole 0.28–0.40 as long as mesosoma toruli with two deep pits Front above toruli with two deep rounded pits divided with a keel to only the keel developed and pits absent. A5 subquadrate to weakly elongated.

MALE. Body length 2.7 mm. Similar to female, but differs mainly in antennal structures and metasoma proportions. Antenna reddish brown; A1 and A2 covered with sparse setae and very fine coriaceous sculpture; flagellum with dense short setae (Fig. 22). A4 not excavated with straight keel extanding from base to 0.8 of its length (Fig. 24). Ratios of length to width of A1–A13 in dorsal view: A1 20:4.5; A2 6:4; A3 18:5; A4 12:4.5; A5 9:4; A6 9:4; A7 8:4; A8 8:4; A9 8:4; A10 8:4; A11 8:3.5; A12 8:3.5; A13 11:3. T5 not expanded laterally. Acetabular carina disturbed medially; mesodiscriment very deep (perhaps, it is result of damage). S3–S7 with fine microsculptured medially.

DIAGNOSIS. The species is closely related to *S. tentorialis* sp. n. but differ from it by following characters: tentorial pits absent (large in *S. tentorialis*); apical rim of female scape with very small indistinct lamella (lamella large in *S. tentorialis*); male A3 distinctly longer than A4 (A3 and A4 ubequal in *S. tentorialis*); T2 without setae protrude from under its (the setae present in *S. tentorialis*).

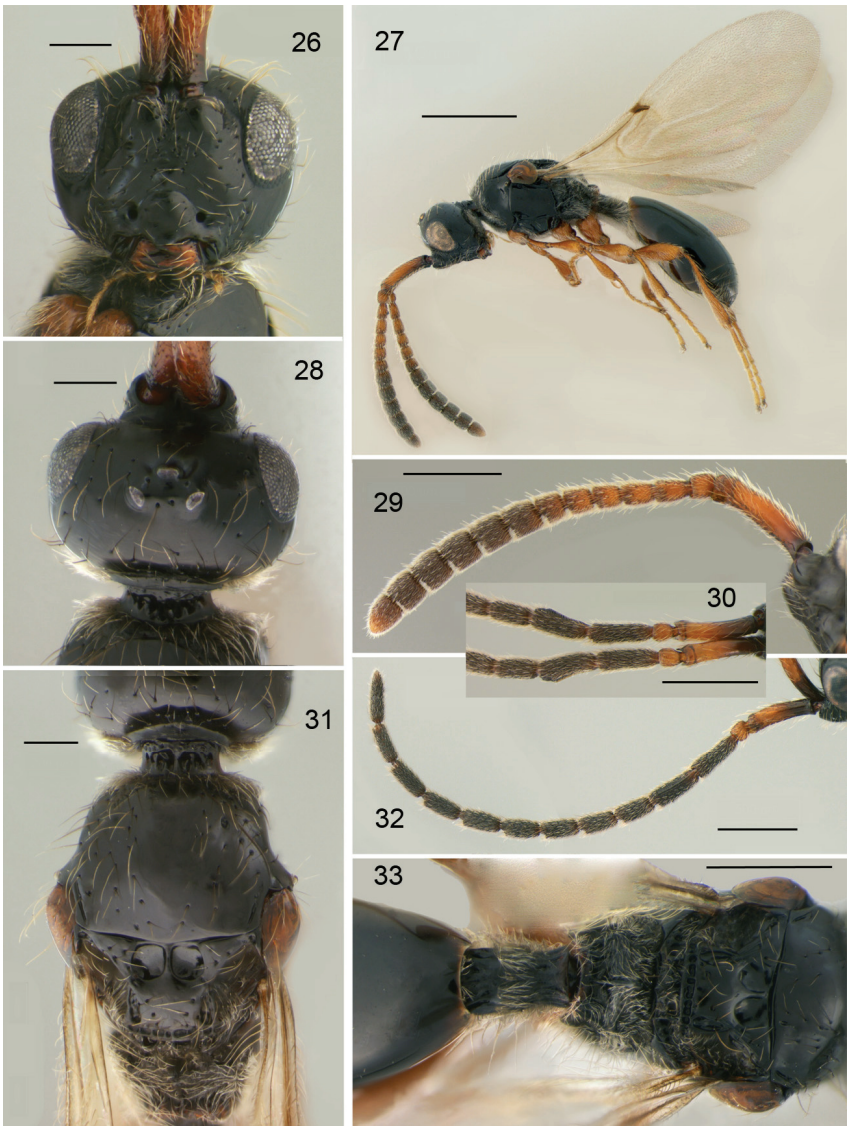
DISTRIBUTION. Russia (Primorskiy Terr.), Japan (Hokkaido), South Korea.

ETYMOLOGY. Derived from Greek *métopo* (forehead) and *trýpa* (hole).

Spilomicrus tentorialis **Chemyreva, sp. n.**
Figs 26–33

TYPE MATERIAL. Holotype – ♀, **Russia**: Primorskiy Terr., 25 km SW from Spassk-Dalniy, Evseevka, 23.VII 2013, S. Belokobylskij" (ZISP). Paratypes. **Russia**: Primorskiy Terr.: 25 km SW from Spassk–Dalniy, Evseevka, 23.VII 2013, 3♀, 2♂, SB (ZISP, BMNH); 15 km SSE of Nezhino, 16–18.VII 1993, 1♀, 1♂, SB (ZISP); 5 km E from Chernigovka, Gornyy Khutor, 2.VII 1993, 1♂, SB (ZISP); vicinity of Spassk-Dalniy, 12.VII–7.VIII 1993, 2♂, SB (ZISP); Lazo Nature Reserve, 22–24.VII 1993, 1♂, SB (ZISP); same locality, VII 2007, 1♀, K. Makarov (ZISP). **Japan**: Honshu Island: Iwate Pref., Iwaizumi, Hitsutori, 770 m, 11–17.VIII 1991, 3♀, A. Smetana (CNCI); Aichi Pref., Shitara, Ubarani, 900 m, 23.V–3.VII 1994, 11–17.VII 1994, 18–24.VII 1994, 10♀, 4♂, K. Yamagishi, (CNCI); Aomori Pref., Towadako, Yakeyama nr. Tsuta riv. 250 m, 40°35′N, 140°59′E, 22–23.VIII 1996, 1♀, L. Masner (CNCI). Shikoku Island: Ehime Pref., Ishizuchi Mt. National Park, Omogo Valley, 700 m, 20.VIII 1980, 1♀, S. Peck (CNCI); Ehime Pref., Ishizuchi Mt. National Park, Tsuchigoya 1400 m, 11–18.VIII 1980, 1♂, S. & J. Pek (CNCI).

DESCRIPTION. Female (holotype). Body length – 3.4 mm. Fore wing length 3.2 mm. Antenna length 2.4 mm. Body mainly black; tegulae, legs, mandibulae and A1–A6 reddish brown; palpi yellow.



Figs 26–33. *Spilomicrus tentorialis* sp. n. 26–29, 31, 33 – female; 30, 32 – male; 26 – face; 27 – habitus, lateral view; 28 – head, dorsal view; 29 – antennae, lateral view; 30 – A1–A6 of male; 31 – mesosoma, dorsal view; 32 – antenna; 33 – mesosoma and petiole, dorsal view. Scale bar: 27 – 1.0 mm; 29, 30, 32, 33 – 500 μm; 26, 28, 31 – 200 μm.

Head in dorsal view transverse (26:21), narrower than mesosoma (26:28), in lateral view higher than length (25:21). Temples and vertex, frons, face and cheek covered by sparse setigerous punctuation, which denser on face (Figs 26, 28). Tentorial pits distinct. Malar sulcus absent. Clypeus semicircular, transverse (9:7), convex. Mandibles projecting forwards, overlapping and bidentate: upper tooth shorter than lower. Eye twice shorter than high of head, oval (12:10), with a few short setae; malar space shorter than eye height (7:12). Pleurostomal distance 2.2 times shorter than wide of head. Front at base toruli smooth. Ocelli oval, triangle, LOL weakly longer than width of anterior ocellus (Fig. 28). POL much shorter than OOL (6:13). Occipital flange narrow smooth. Postgena with dense cushion (Fig. 31).

Antennae. A1 cylindrical, slightly curved and sparsely covered by fine setigerous punctuation with long setae. Apical rim of A1 with two projecting lamellae overlapping base of A2. A2 compressed, in lateral view quadrate. Antenna with non-abrupt clava (Fig. 29). A8–A13 distinctly flattened on ventral side with MGS brush. In lateral view, connection between A6–A13 situated dorsaly. A13 without ventral pit. Ratios of length to width of A1–A13 in dorsal view: A1 24:5.5; A2 5:4; A3 7:4; A4 6:4.5; A5 5:4.5; A6 6:5; A7 6:5.5; A8 7:7; A9 7:7.5; A10 7:7.5; A11 7:7.5; A12 7:7; A13 8:6.

Mesosoma in lateral view longer than high (33:20); in dorsal view longer than wide (33:24). Neck bare, with deep longitudinal grooves. Cervical pronotal area pubescent; pronotal cushion dense (Fig. 28). Pronotum with sparse setigerous points dorsally near mesonotum. Lateral pronotal area smooth. Anterior incision of mesopleuron small and deep. Propleuron smooth, covered with short silvery pubescence. Mesopleuron with smooth and pubescent ventral side, smooth and bare lateraly, with one longitudinal keel under tegula and sternaulus extending from anterior incision of mesopleuron to posterior margin of mesopleuron as sharp keel. Acetabular carina sharp, strongly prominent and moved posteriorly in medial part; not disturbed medially. Postacetabular sulcus absent. Mesodiscriment deep. Mesopleural epicoxal carina developed only laterally; mesopleural epicoxal sulcus and carina on ventral side absent. Mesoscutum wider than length (28:22). Notauli absent. Humeral sulcus partly shallow anteriorly. Mesoscutum, axilla and scutellum with scattered setigerous punctuation. Scutellum flattened with two large circular anterior scutellar pits. Axillar depression poorly pubescent and faintly sculptured (Fig. 33). Lateral scutellar pit broad and long. Posterior scutellar pits small and deep. Metascutellum pubescent with deep punctuation; median and one lateral keels weakly projecting. Propodeum narrowed posteriorly, transverse (45:25); median propodeal keel projecting into spine directed upward; propodeum entirely coarsely rugose, with pale pilosity and several longitudinal irregular keels. Posterior margin of propodeum in dorsal view weakly arcuate. All legs with delimited trochantelli.

Fore wings clear, three times longer than wide. Marginal vein elongate (5:3); stigmal vein longer than width of marginal vein (Fig. 27). Submarginal vein tubular, sclerotized. Costa and basal vein nebulous.

Metasoma. Petiole cylindrical, weakly broadened posteriorly, elongated (11: 9), with longitudinal grooves which deep anteriorly and shallow posteriorly, entirely pubescent excluding area near base of T2. Several long setae protrude forward from

under anterior margin of A2 (Fig. 33). T2 with a few short sparse setae without micropunctures. T3–T5 each with dense fine punctation and one row setigerous punctures with long setae, the setae becoming denser on lateral part of tergites. T5 expanded lateraly and covered with numerous short and long setae at sides. T6 small, T7 pointed. S2 smooth, with dense white cushion at anterior margin; its posterior surface with scattered setae. S3–S5 with dense fine micropunctures and one row of long setae. Apical sternite with denser punctation and short setae apically.

VARIATION. Body length 2.6–3.4 mm. A3 equal to slightly longer than A2. A8–A11 subquadrate to weakly transverse. Front at base toruli smooth or with very shallow pressure. Petiole 0.25–0.30 as long as mesosoma.

MALE. Body length 2.8–3.7 mm. Similar to female, but differs mainly in antennal structures and some proportions. Eyes of male larger, ratio of its high and head high 17:32. A3–A13 dark brown covered with short and dense pale pubescence, A1 and A2 amber, smooth, with long sparse setae. A4 weakly excavated, with keel extending from base to 0.8–0.9 segment length (Figs 30, 32). Length to width of A1–A13 in dorsal view: A1 20:4.5; A2 5:4; A3 15:4; A4 15:5; A5 10.5:4.5; A6 11:4.5; A7 12:4.5; A8 12:4.5; A9 12:4.5; A10 12:4.5; A11 11:4; A12 11:4; A13 14:3, but sometimes A3 much more shorted. A3 as long as A4 or longer than it. Petiole elongated (6:21), 0.30–0.35 as long as mesosoma. T5 not expanded lateraly and without setae at sides.

DIAGNOSIS. *S. tentorialis* sp. n. can be differentiated from the all known *Spilomicrus* species by the combination of these states: tentorial pits large; malar sulcus and notauli absent (Figs 26, 31); female antennae with non–abrupt clava, apex of A13 pale; male A4 weakly excavated, with keel extending from base to 0.8–0.9 segment length; distal margin of propodeum in dorsal view weakly arcuate; long setae protrude forward from under T2 anterior margin (Fig. 33). The species is closely related to *S. integer* Thomson, from European fauna, but differs from it by following characters: head of male and female strongly transverse in dorsal view (subquadtare in *S. integer*); marginal vein short, no longer than its width (elongate in *S. integer*). In the East Palaearctic fauna the new species is most similar to *S. bicarinatus* sp. n. but differs by several states: male A5 without keel (with keel in *S. bicarinatus*); body length 2.6–3.7 mm (1.3–2.9 mm in *S. bicarinatus*); female with non-abrupt clava (abrupt 6-segmented clava in *S. bicarinatus*)

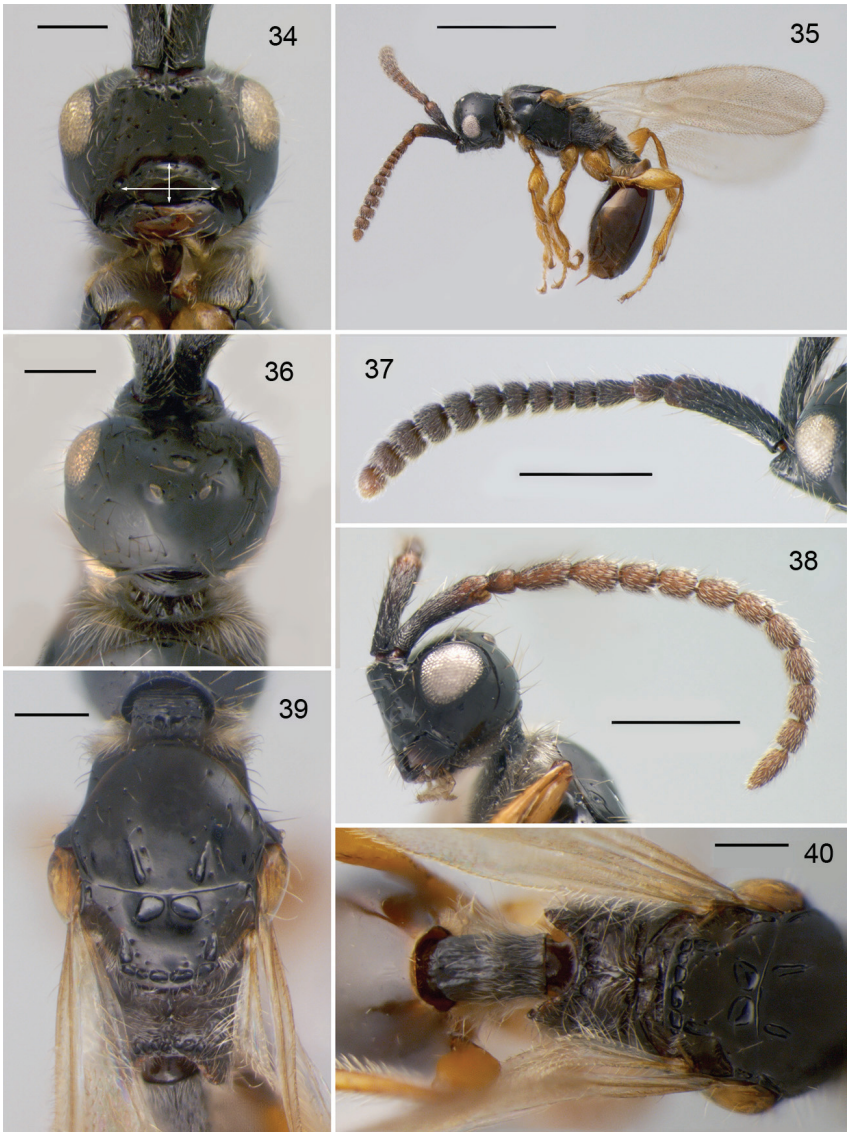
DISTRIBUTION. Russia (Primorsky Terr.), Japan (Honshu, Shikoku).

ETYMOLOGY. The name refers to the big and well observed tentorial pits.

Spilomicrus transversus **Chemyreva, sp. n.**
Figs 34–40

TYPE MATERIAL. Holotype – ♀, **Russia**: Primorskiy Terr., Anisimovka, mountain Krinichnaya, 28.VIII 2001, S. Belokobylskij (ZISP). Paratypes. **Russia**: Primorskiy Terr.: same label as in holotype, 1♀, 1♂ (ZISP); Lazo Reserve, 5-10.VII 2014, 7♂, 2♀, V. Chemyreva (ZISP, BMNH); Ussuriysk Distr., 20 km SW Krounovka, 4–5.VIII 1993, 2♂, SB (ZISP); Spassk-Dalniy outskirts, Evseevka, 20–22.IX 1987,

1♀, SB (ZISP); Sikhote-Alin' Nature Reserve, Udachnaya Bay, 6–11.VIII 2012, 1♀, V. Loktionov (ZISP); Southern Primorije, 1992, 1♂, 4♀, A. Okulov (CNCI). **Japan**: Hokkaido Island, Sapporo, 13.VIII 1987, 1♀, K. Maeto (CNCI). Honshu



Figs 34–40. *Spilomicrus transversus* sp. n. 34–37, 39, 40 – female; 38 – male; 34 – face; 35 – habitus, lateral view; 36 – head, dorsal view; 37, 38 – antenna, lateral view; 39 – mesosoma, dorsal view; 40 – mesosoma and petiole, dorsal view. Scale bar: 35 – 1.0 mm; 37, 38 – 500 μm; 34, 36, 39, 40 – 200 μm.

Island, Aichi Pref., Mt. Sanage-yama, 4–10.VI 1989, 1♂, A. Takano (CNCI). Shikoku Island, Ehime Pref., Ishizuchi, N.P.Omogo Valley, 700 m, 21.IX 1980, 1♀, S. Peck (CNCI).

DESCRIPTION. Female (holotype). Body length 2.4 mm; fore wing length 2.1 mm; antenna length 1.4 mm. Colour. Body mainly black; tegulae, legs, palpi and A13 yellowish brown; venation brown; A2–A12 dark brown.

Head in dorsal view as wide as long, narrower than mesosoma (21:24); in lateral view as high as long. Head covered with scattered setigerous punctures. Tentorial pits present, large, with weakly defined edge (Fig. 34). Malar sulcus absent. Clypeus smooth and shining, strongly transverse (35:15), convex. Epistomal sulcus distinct and deep. Mandible long, bidentate, upper tooth shorter and narrower than lower tooth. Eye with long sparse pubescence, not enlarged, shorter than half of head height (13:15), oval (13:10). Malar space shorter than the longest diameter of eye (10:16). Pleurostomal distance 0.75 times as long as width of head. Vertex gradually sloping behind ocelli. Ocelli medium-sized, oval (12:9), LOL larger than width of anterior ocellus (5:4) (Fig. 36). POL 0.5 times OOL. Occipital flange narrow, smooth. Postgenal areas with cushion of setae.

Antenna with non-abrupt clava (Fig. 37). A1 cylindrical, slightly arcuate, broadened apically, covered with sculpture and scattered long setae. Apical rim of A1 with two moderately projecting lamellae. A2 rounded in apical part and compressed at base, rectangular in lateral view (5:6). A2–A13 covered with dense short and long setae. Clavomeres A9–A12 flattened on ventral side with distinct MGS brush. In lateral view, articulation points between A8–A13 slightly displaced dorsally (Fig. 35). A13 without ventral pit. Ratios of length to width of A1–A13 in dorsal view: A1 23:6.5; A2 7:4.5; A3 6:5; A4 4:5; A5 4:5; A6 4:5; A7 4.5:5.5; A8 5:6; A9 6:6.5; A10 6:7.5; A11 6:7.5; A12 6:7; A13 7:5.

Mesosoma depressed, in lateral view longer than high (39:20), in dorsal view longer than wide (39:25). Neck bare, with longitudinal grooves posteriorly, fine rugose anteriorly (Figs 36, 39). Median pronotal area narrow, perpendicular to mesoscutum, with few setae medially and dense setae laterally. Pronotal shoulders weakly convex and rounded. Lateral pronotal area smooth and bare. Propleuron smooth, with dense and short pilosity (Fig. 34). Mesopleuron smooth, with two narrow longitudinal keels under tegula, shining and bare at median area. Sternaulus absent. Anterior incision of mesopleuron distinct, without setae. Acetabular carina strongly prominent laterally and somewhat flattened and medially not moved anteriad or posteriad. Ventral side of mesopleuron pubescent. Postacetabular sulcus absent. Mesodiscrimen distinct. Mesopleural epicoxal carina present only laterally; mesopleural epicoxal sulcus and carina on ventral side absent. Mesoscutum flattened, wider than long (25:20), with few separate setigerous punctures and long setae, shine (Fig. 39). Notauli distinct, developed only in posterior third of mesoscutum, well impressed, convergent posteriorly. Humeral sulcus indistinct. Anterior scutellar pits small, convergent anteriorly and diverging in posterior part. Axilla smooth and shine, with scattered setigerous punctures and long setae. Axillar depression pubescent and smooth. Lateral scutellar pits distinct, broad. Posterior scutellar pits

very large. Metascutellum and propodeum coarsely rugose and entirely with numerous erect setae (Fig. 40). Median and laterals keels of metascutellum weakly projecting. Propodeum strongly transverse (45:18); median propodeal keel moderately projecting anteriorly and directed upwards.

Wings. Marginal vein elongate (8:3); stigmal vein longer than width of marginal vein (4:3). Submarginal vein tubular, sclerotized. Costa nebulous distally and sclerotized at base. Basal and cubital veins nebulous. In fore wing ratio of length to width 7:18.

Metasoma. Petiole cylindrical, in dorsal view longer than median width (8:5), with fine longitudinal grooves anteriorly (Fig. 40). Petiole entirely covered with short and long setae ventrally and laterally, and dorsally in anterior half. Metasoma behind petiole rounded, elongate (21:12). Posterior part of T2, T3–T6 and S3–S5 medially with traces of microsculpture and covered with long erect and scattered setae. T5 not expanded laterally, without additional short setae. T7 with few setigerous punctures and setae. S2 with dense cushion of setae at base, remaining surface of S2 with scattered long setae. S6 with dense setigerous punctures and numerous long erect setae.

VARIATION. Body length 2.4–3.2 mm. A1–A13 dark brown to reddish brown; legs yellowish to reddish brown. A3 shorter to distinctly longer than A2. Trochantelli of middle femora indistinct or partly marked. Costal vein sclerotized in various length. Mesopleuron with two or three keels under tegula. Posterior scutellar pits of variable size and number. Median keel of propodeum strongly to weakly expressed. Petiole cylindrical or broadened medially, covered with long keels entirely or in anterior parts only.

MALE. Body length 2.3–3.3 mm. Similar to female, but differs mainly in antennal structures and metasoma proportions. A3–A13 reddish brown, covered with short dense pale pilosity, A1 and A2 amber yellow to dark brown, with long sparse setae and coriaceous sculpture (Fig. 38). A4 emarginate below, with keel extended from base to 0.65–0.70 of segment length. Keel surrounded by bare and shine areas. Ratios of length to width of A1–A13 in dorsal view: A1 25:6; A2 7:5; A3 13:5.5; A4 11:6; A5 9:6; A6 9:6; A7 9:6; A8 9:6; A9 9:6; A10 9:5.5; A11 8:5.5; A12 8:5.5; A13 11:5. Notauli short, developed in posterior third to posterior half of mesonotum. Petiole elongate (20:11), 0.26–0.33 as long as mesosoma. T5 not expanded laterally.

DIAGNOSIS. *Spilomicrus transversus* sp. n. can be differentiated from other Palaearctic species by the combination of these states: clypeus strongly transverse, more than two times wider than high (Fig. 34); pleurostomal distance much greater than half of head width; propodeum, especially in female, transverse, posterior margin strongly emarginate between plicae (Fig. 40); all legs in female stout: femora shortened, widest at its basal third and with sharp ventral margin (Fig. 35); mesosoma of female depressed, distinctly wider than high; trochantelli marked in fore and mid femora, hind femur with unmarked trochantelli. The species is closely related to *S. compressus*, but differs from them by the following combination of characters: female petiole more elongate, in dorsal view longer than median width (8:5) (wider in *S. compressus* (9:8)); head distinctly transverse (subquadrate in *S. compressus*); median

propodeal keel elevated (flattened in *S. compressus*); A4–A12 of female strongly transverse (at least A4–A9 weakly transverse in *S. compressus*); antenna with non-abrupt clava (abrupt in *S. compressus*).

DISTRIBUTION. Russia (Primorskiy Terr.), Japan (Hokkaido, Honshu, Shikoku).

ETYMOLOGY. The name derived from the Latin adjective *transversus* and refers to transverse clypeus, propodeum and female antennomeres.

NEW RECORD

Spilomicrus formosus Jansson, 1942

MATERIAL EXAMINED. **Russia**: Chukotka Prov.: Omolon River, 180 km belong of Omolon villadge, 19–20.VIII 1976, 1♀, Marshakov. Magadan Prov.: 50 km N of Magadan, 13.VIII 1975, 1♂, Marshakov. Khabarovskiy Terr.: Vaninskiy Distr., 10.VII 1983, 1♂, D. Kasparyan. Primorskiy Terr.: vicinity of Novokachalinsk, 30.VI 1990, 1♀, SB; vicinity of Spassk-Dalniy, 9–10.VII 1995, 1♂, SB; Ussuriysk Nature Reserve, 1.VIII 1993, 1♂, SB; 15 km SSW from Nezhino, 16–18.VII 1993, 1♂, SB. Sakhalin Prov.: South Sakhalin, vicinity of Novoaleksandrovsk, 7.IX 1973, 1♀, D. Kasparyan; same locality, 14.VII 1981, 1♂, SB.

VARIATIONS. Female A6 brown to yellow. Posterior scutellar pits small and divided to fused together. Male A4 as long as to distinct shorter than A3.

DISTRIBUTION. Europe (Northern, Western, Eastern), Russia (European part), Japan (Hokkaido), Canada, USA (Notton, 1999). This species is newly recorded from the Russian Far East (Chukotka, Magadan Prov., Khabarovskiy Terr., Primorskiy Terr., and Sakhalin).

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REFERENCES

Chemyreva V.G. 2015a. Three new species of the parasitic wasps genus *Spilomicrus* Westwood (Hymenoptera: Diapriidae) from the East Palaearctic Region. *Zootaxa*, 4059(1): 191–200. DOI: 10.11646/zootaxa.4059.1.11

Chemyreva, V.G. 2015b. New and little known species of the genus *Spilomicrus* (Hymenoptera: Diapriidae) from the Eastern Palaearctic. *Zoosystematica Rossica*, 24(2): 266–278.

Chemyreva, V.G. 2016. A new species of the genus *Spilomicrus* Westwood (Diapriidae: Hymenoptera) from the Eastern Palaearctic. *Euroasian Entomological Journal*, 15(1): 178–181.

Chemyreva, V.G. & Kolyada V.A. 2013. First record of the New World genus *Pentapria* Kieffer, 1905 (Hymenoptera: Diapriidae: Spilomicrini) from Palaearctic Region. *Zoosystematica Rossica*, 22(2): 286–296.

Hoffmeister, T. 1989. Biologie und Wirtskreis parasitischer Hautfluegler der Familie Diapriidae. *Natur und Museum*, 119: 327–334.

Honda, M. 1969. Descriptions of two new species of Diapriidae (Hymenoptera) parasitic on *Eristalis* sp. and *Lathyrophthalmus ocularis* Coquillett (Diptera: Syrphidae). *Mushi*, 42: 155–162.

Hymenoptera Online (HOL) http://hol.osu.edu/ (accessed 07.02.2018).

Johnson, N.F. 1992. Catalog of World species of Proctotrupoidea, exclusive of Platygastridae (Hymenoptera). *Memoirs of the American Entomological Institute*, 51: 1–825.

Kim, C.-J. & Lee, J.-W. 2016. *Spilomicrus magnus* sp. nov., a new diapriid wasp (Hymenoptera: Diaprioidea: Diapriidae) from South Korea and two new records of the genus *Spilomicrus* from the Eastern Palaearctic region. *Entomological Research*, 46: 360–364.

Kozlov, M.A. 1995. Fam. Diapriidae. P. 45–57. In: Lehr, P.A. (Ed.). *Key to the insects of Russian Far East. Vol. IV. Neuroptera, Mecoptera and Hymenoptera. Part 2.* Dalnauka, Vladivostok. [In Russian]

Masner L. 1991. Revision of *Spilomicrus* Westwood in America North of Mexico (Hymenoptera: Proctotrupoidea, Diapriidae). *The Canadian Entomologist*, 123:107–177.

Masner L. & García J.L. 2002. The genera of Diapriinae (Hymenoptera: Diapriidae) in the New World. *Bulletin of the American Museum of Natural History*, 268: 1–138.

Notton, D. 1999. A revision of the north-west European species of the *formosus* species group of *Spilomicrus* (Hymenoptera, Diapriidae). *Bulletin of the Natural History Museum (Entomology)*, 68: 129–144.

Notton, D.G. 2014. A catalogue of the types of Diapriinae (Hymenoptera: Diapriidae) at the Natural History Museum, London. *European Journal of Taxonomy*, 75: 1–123.

Rajmohana, K. 2006. Studies on Proctotrupoidea and Platygastroidea (Hymenoptera: Insecta) of Kerala. *Memoirs of the Zoological Survey of India*, 21(1): 1–153.

Westwood, J.O. 1832. Descriptions of several new British forms amongst the parasitic hymenopterous insects. *London & Edinburgh Philosophical Magazine and Journal of Science*, 1: 127–129.

Yoder, M.J. 2004. Revision of the north American species of the genus *Entomacis* (Hymenoptera: Diapriidae). *The Canadian Entomologist*, 136: 323–405.

Yoder, M.J, Mikó I, Seltmann K.C., Bertone M.A., Deans A.R. 2010. A gross anatomy ontology for Hymenoptera. *PLoS ONE*, 5: e15991. DOI: 10.1371/journal.pone.0015991

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