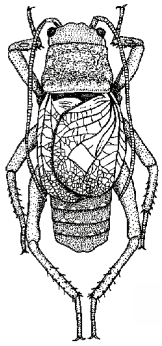

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REVIEW OF THE GENUS *JANUS* STEPHENS, 1829 (HYMENOPTERA: SYMPHYTA: CEPHIDAE) OF THE RUSSIAN FAUNA

S. A. Basov

Zoological Institute of the Russian Academy of Sciences, Universitetskaya nab. 1, St Petersburg 199034, Russia. E-mail: basov-sergej@mail.ru

Summary. Data on the composition and distribution of species of the sawfly genus *Janus* Stephens, 1829 (Hymenoptera: Cephidae) in Russia are clarified. *Janus nasutus* **sp. n.** is described from Primorsky Territory. The illustrated description of hitherto unknown male of *Janus formosus* (Zhelochovtsev, 1935) is given. *Janus compressus* (Fabricius, 1793) is recorded from Uzbekistan for the first time. A key to all Russian species of the genus *Janus* with illustrations of both male and female genitalia is provided.

Key words: Symphyta, Cephidae, taxonomy, new species, fauna, new records, key, Palaearctic region.

С. А. Басов. Обзор рода *Janus* Stephens, 1829 (Hymenoptera: Symphyta: Cephidae) фауны России // Дальневосточный энтомолог. 2024. N 500. С. 1-12.

Резюме. Уточнены данные о составе и распространении видов пилильщиков рода *Janus* Stephens, 1829 (Hymenoptera: Cephidae), известных из России. Из Приморского края описан *Janus nasutus* **sp. n.** Дано иллюстрированное описание неизвестного до сих пор самца *Janus formosus* (Zhelochovtsev, 1935).

Впервые для Узбекистана указан *Janus compressus* (Fabricius, 1793). Приведена определительная таблица всех российских видов рода *Janus* с фотографиями гениталий самцов и самок.

INTRODUCTION

The small genus *Janus* Stephens, 1829 includes 28 species worldwide, four of which were already recorded in the fauna of Russia (Taeger *et al*., 2010). Despite the fact that outbreaks of abundance are known for some *Janus* species, such as *Janus compressus*, (Validzic *et al*., 2010; Jerinic-Prodanovic *et al*., 2012), most species of this genus are rare in Russia. *Janus formosus*, described from the Russian Far East, was known only from a single holotype and it needs to be detailed redescribed and illustrated.

Until now, only two species, *Janus luteipes* and *J. formosus*, were known from the Russian Far East (Sundukov, 2017). After studying the material stored in the collection of the Zoological Institute of the Russian Academy of Sciences, hitherto unknown males of *Janus formosus* and a previously undescribed *Janus* species were discovered in the Far East. The only genus key for Russia that currently existing (Gussakovskij, 1935) includes four species and needs to be updated and supplemented.

MATERIAL AND METHODS

The studied materials are stored in the collections of the Zoological Institute of the Russian Academy of Sciences, St. Petersburg [ZISP], the Zoological Museum of the Moscow State University, Moscow [ZMMU], the Federal Scientific Center of the East Asia Terrestrial Biodiversity (former Institute of Biology and Soil Science), Vladivostok [IBSS], the Ural Federal University, Ekaterinburg [UFU] and the Institute of Systematics and Ecology of Animals, Novosibirsk [ISEA].

The specimens were examined using Olympus SZ61 stereomicroscope. All the colour photographs were obtained using an Olympus SZX10 stereomicroscope and an Olympus OM-D E-M1 camera. Image stacking was performed with Helicon Focus 5.0. Images of genitalia were taken using Nicon DS-Ri2 digital microscopy camera via Nicon SMZ25 stereomicroscope (Figs 1J–K, 2I–J, 3A–G).

The data on the general distribution of the species in Russia are given according to the “Annotated Catalogue of the Hymenoptera of Russia” (Sundukov, 2017) and Gussakovskij (1935), those on the distribution outside Russia were borrowed from “European sawflies (Hymenoptera: Symphyta), a species checklist for the countries” (Taeger *et al*., 2006) and ECatSym (2018). In the text, an asterisk (*) indicates the region where the according species is recorded for the first time.

RESULTS

Family Cephidae Newman, 1834

Genus *Janus* Stephens, 1829

Type species: *Janus connectens* Stephens, 1829.

***Janus formosus* (Zhelochovtsev, 1935)**
Figs 1A–K

Cephus formosus Zhelochovtsev, 1935, March: 150; Taeger *et al*., 2010: 49.
Janus orientalis Gussakovskij, 1935, October: 83; Zhelochovtsev, 1968: 49 (as synonym of *J. formosus*); Taeger *et al*., 2010: 49.

TYPE MATERIAL EXAMINED. Holotype of *Cephus formosus* Zhelochovtsev, 1935: "Ussuri, Olga distr, Shkotovo, 6.V.1927, A. Zhelochovtsev"; "*Cephus formosus* nov. sp. ♀ Typus A. Zhelochovtsev det. 1930"; golden circle. [ZMMU]. Holotype of *Janus orientalis* Gussakovskij, 1935: "der. Khungara, 280 v. vniz po Amuru ot Khabarovska, 15.VI.[1]911, Soldatov"; "*Janus orientalis* typus V. Gussakovskij"; "Holotype *Janus orientalis* Gussakovskij 1935 vide A. Taeger 2014, red label" "DEI-GISHym 30271"; golden circle [ZISP].

ADDITIONAL MATERIAL EXAMINED. **Russia**: Primorsky Territory: Vladivostok, Sedanka, 1–14.VI 1979, 4♂, 9♀ (A. Zinovjev) [ZISP]; same locality, 3.VI 1978, 1♀ (A. Lelej) [IBSS]; 20 km SE of Ussuriysk, GTS, 30.V 1990), 1♀ (S. Belokobylskij [ZISP]; 30 SE of Ussuriisk, Kamenushka, 7.VI 1979, 1♀ (A. Zinovjev) [ZISP]; Station Gvozdevo, 10 km E of Posjet, 30.V 1979, 1♀ (A. Zinovjev) [ZISP]; Chyornye Mountains, Luna Mt., Kraskino, 6.VI 1962, 1♀ (O. Kovalyov) [ZISP]; Barabash-Levada, 18.VI 1980, 1♀ (S. Konovalov) [ZISP]; Lyalichi, Ilistaya River, 3.VI 1990, 1♀ (S. Belokobylskij) [ZISP]. Khabarovsk Territory*:* 24 km S of Khabarovsk, 29.V 1983, 2♂ (A. Zinovjev) [ZISP]; Khehtsyr, 4.VI 1983, 5♂, 1♀ (D. Kasparyan) [ZISP]; Khehtsyr, 18-st km, 8.VI 1983, 1♂ (D. Kasparyan) [ZISP]; Slavianka, Khehtsyr, 17-th km, 3.VII 1983, 2♂ (D. Kasparyan) [ZISP]; Khehtsyr, Vysokogornyi, 9–10.VII 1983, 2♀ (D. Kasparyan) [ZISP]; 20 km NE of Troitskoe, 23.VI 1983, 1♀ (D. Kasparyan) [ZISP]. Sakhalin Province, Kuriles, SW Kunashir I., Krivonozhka Spring, 20–22.VI 2013, 1♂, 3♀ (Yu. and L. Sundukov) [ZISP].

REDESCRIPTION. Female (holotype).

Measurements. Total body length: 9.2 mm; fore wing: 7.5 mm.

Colour. Body black; mandibular yellow with orange tips of tooth and black stripe basally; angles of posterior margin of pronotum pale yellow, tegulae yellow. Fore and middle legs with dark brown coxae, femora orange, brown first and yellow second trochanters, tibia and tarsus yellow. Hind legs with coxae yellow with black spot at base, brown first and yellow second trochanters, orange femurs, basal one-third of tibiae yellow, its remaining part and tarsus dark brown. Wings transparent, veins and pterostigma light brown. Setae of body yellowish-white.

Sculpture. Head weakly and sparsely punctuated, shiny between punctures. Vertex finely punctured; cheeks behind eyes slightly wrinkled. Thorax and abdomen weakly and evenly punctured, anterior half of pronotum smooth and shiny.

Head. Malar space as long as diameter of median ocellus; distance between antennal toruli about as long as distance between torulus and inner margin of eye; interantennal carina low and blunt; raised between antennae and smoothly passing into clypeus. Maxillary palp as in Fig. 1E; palpomere 2 and 3 combined, near as long

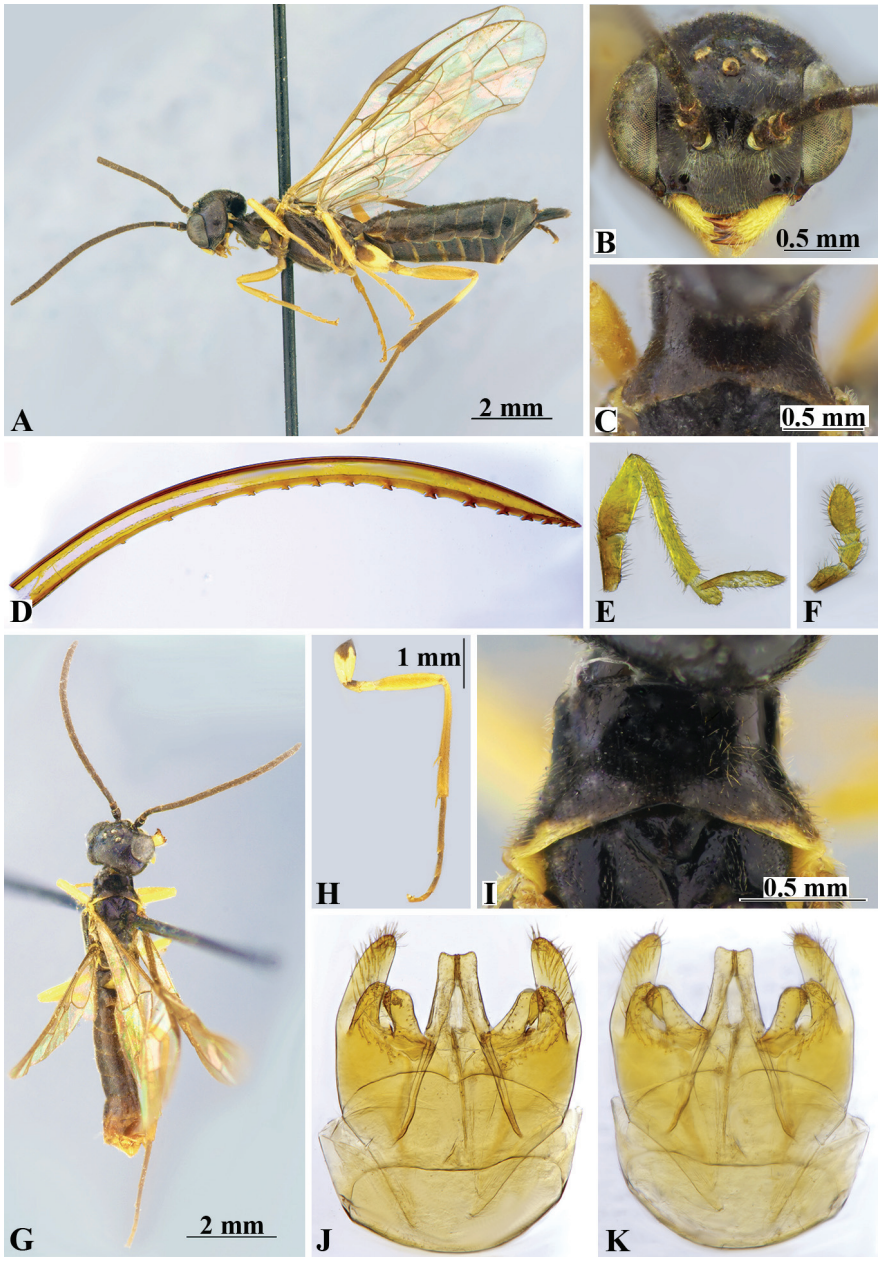

Fig. 1. *Janus formosus*, holotype, female (A–F) and male (G–K). A – habitus, lateral view; B – head, frontal view; C, I – pronotum, dorsal view; D – lancet, lateral view; E – maxillary palp; F – labial palp; G – habitus, dorsal view; H – hindleg, lateral view; J – genital capsule, ventral view; K – genital capsule, dorsal view.

as palpomere 4, palpomere 3 as long as palpomere 6. Labial palp as in Fig. 1F; ratio of palpomeres 1 : 2 : 3 : 4 as 2.5 : 1.8 : 1.0 : 2.8. Vertex not convex, not limited by lateral sutures, strongly longitudinally elongated. OOL: POL = 0.9, OCL : POL = 2.5. Length of antenna 2.5 × maximum head width; antenna with 23 antennomeres.

Legs. Hind tibia with two pre-apical spurs. Claw with basal lobe, its inner tooth as long as outer tooth.

Abdomen. Saw sheath longer than basal plate, laterally narrow and slightly curved downwards. Lance and lancet with teeth. Lancet with 15 teeth; these teeth not high and forked at top.

DESCRIPTION. Male (previously unknown). Total body length: 7.3–7.6 mm; fore wing: 6.9–7.1 mm. Similar to female, but abdominal sternites and 2–3 apical tergites yellowish orange. Hind femora and tibiae yellow, only tarsus brownish. Angles of posterior margin of pronotum with distinct yellow border. Genitalia as in Fig. 1J, K. Valviceps converge dorsally at acute angle, its apical part notched.

VARIATION. Antenna with 22–25 antennomeres; females and males occasionally have black spot on outer side of femora; claws on hind legs sometimes orange; apex of flagellum sometimes brownish. In males, not only sternites and apical tergites of abdomen sometimes rufous, but also remaining tergites becoming rufous in middle, their downward bent parts remaining black; mesopleuron sometimes with yellowish spot; occasionally first trochanter completely black.

COMPARATIVE DIAGNOSIS. The species is similar to *Janus cynosbati*, but have hind femora orange (red in *J. cynosbati*), and hind coxae and trochanters yellow (black in *J. cynosbati*).

DISTRIBUTION. Russia: Far East (*Sakhalin Province, Khabarovsk and Primorsky Territories).

HOST PLANT. Unknown.

NOTE. The holotype of *Janus orientalis* has been studied. This species was synonymized by A.N. Zhelochovtsev (1968) and it is in fact identical to *Janus formosus*.

The finds of *Janus formosus* in Siberia (Novosibirsk Province and Altai Republic) (Stroganova, 1982) are questionable and cannot be considered reliable (Kostyunin, 2015); the material determined by Stroganova were not found in ISEA collection. This is probably happened due to misidentification of some species from the genus *Cephus* Latreille, 1803, because the members of the genera *Cephus* and *Janus* are very similar in shape and colour. I think it seems preferable to exclude West Siberia from the range of this species in Russia before receiving of reliable documented confirmation.

***Janus nasutus* sp. n.**

https://zoobank.org/NomenclaturalActs/5470F94E-4B31-4DD6-8943-E02A6C32301E

Figs 2A–H

TYPE MATERIAL. Holotype: ♂, Russia: “5 km SSV [NNE] of st.[antziya] Khasan, Yu.[zhnoe] Primorie, A. Zinovjev, 26.V 1979” [ZISP].

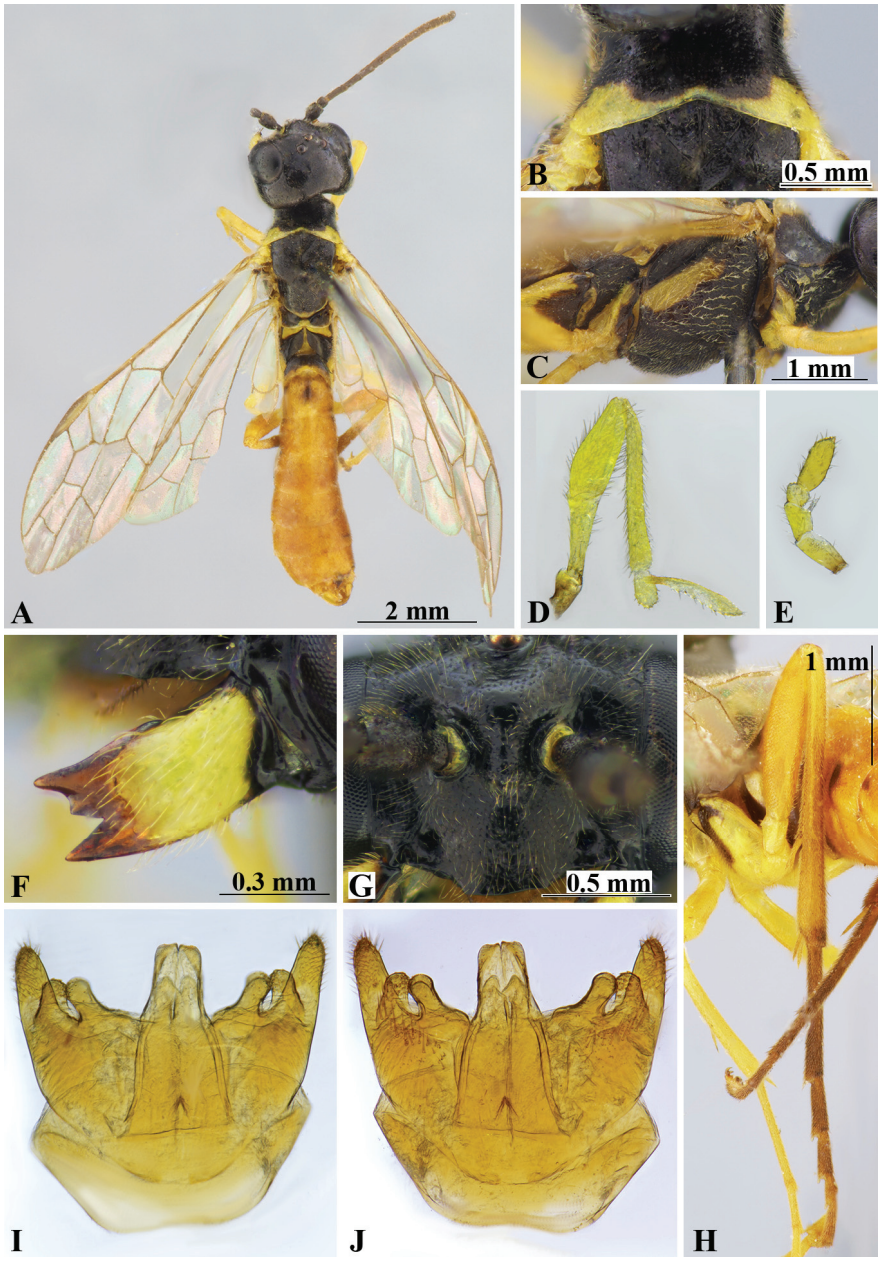

Fig. 2. *Janus nasutus* sp. n., holotype, male. A – habitus, dorsal view; B – pronotum, dorsal view; C – mesopleura, lateral view; D – maxillary palp; E – labial palp; F – left mandibula, frontal view; G – face, frontal view; H – hindleg, lateral view; J – genital capsule, dorsal view; K – genital capsule, ventral view.

DESCRIPTION. Male (holotype).

Measurements. Total body length: 8.0 mm; fore wing: 6.6 mm.

Colour. Head, most of thorax, first and most of second abdominal tergites black. Mandibular yellow with orange tips of tooth and black stripe basally. Wide pattern along posterior margin of pronotum, tegulae, large spot on mesopleuron, concave areas of metanotum and metapostnotum yellow. Two basal antennal segments black, remaining segments dark brown above and yellowish-brown below. Coxae yellow with small black spot at base. Remaining parts of fore and middle legs yellow. Hind legs with yellow trochanters, orange femurs and dark brown apices of tibiae and tarsus. Abdomen starting from apex of second tergite orange. Wings hyaline, veins and pterostigma light brown. Setae of body whitish-yellow.

Sculpture. Face and clypeus densely punctured, spaces between punctures smooth and shiny. Vertex finely punctured; temple behind eyes smooth and shiny. Thorax and abdomen weakly and evenly punctured.

Head. Malar space as long as diameter of median ocellus; distance between antennal toruli about as long as distance between torulus and inner margin of eye (Fig. 2G). Interantennal carina high and rounded, significantly protruding above antennae (lateral view); its ends abruptly in front of clypeus and forming rounded elevation. Maxillary palp as in Fig. 2D, palpomere 2 and 3 combined near as long as palpomere 4; palpomere 3 as long as palpomere 6. Labial palp as in Fig. 2E, ratio of palpomeres 1 : 2 : 3 : 4 as 2.5 : 1.8 : 1 : 2.8. Vertex not convex, not limited by lateral sutures, strongly longitudinally elongated. OOL : POL = 0.9, OCL : POL = 2.3. Length of antenna 2.5 × maximum width of head; antenna with 23 antennomeres.

Legs. Hind tibia with two pre-apical spurs. Claw with basal lobe, its inner tooth (first of three) as long as apical tooth.

Abdomen. Subgenital plate apically rounded. Genital capsule as in Figs 2I, J. Valviceps almost parallel-sided dorsally, their apical part flat.

Female. Unknown.

COMPARATIVE DIAGNOSIS. The new species is similar to *Janus compressus*, but differs from latter in the genital structures: valviceps almost parallel dorsally and their apical part is flat (valviceps converging dorsally to apex at acute angle and their apical part protrudes at obtuse angle in *J. compressus*), body length 8.3 mm (6.0–8.0 mm in *J. compressus*) and more pronounced yellow coloration of pronotum and mesopleuron (mesopleuron completely black, pronotum with only narrow yellow border along its posterior margin in *J. compressus*).

DISTRIBUTION. Russia: Far East (Primorsky Territory).

HOST PLANT. Unknown.

ETYMOLOGY. The specific name is given from the Latin word "*nasutus*" meaning "big-nosed", because the face between antennae is strongly convex, sharply ending in rounded bump, similar to a “nose”.

***Janus compressus* (Fabricius, 1793)**

Figs 3A, D–E

MATERIAL EXAMINED. **Uzbekistan**: Tashkent Province: near Bashkyzylsay River, 1200–1400 MSL, 16.VI.1980, 1♀ (D. Kasparyan) [ZISP]. Unreadable label, 1860s, 1♂ (F. Sichel) [ZISP].

DISTRIBUTION. (?)Russia. Algeria Austria, Belgium, Bulgaria, Croatia, Czech Republic, France, Germany, Great Britain, Hungary, Italy, Morocco, Netherlands, Portugal, Romania, Slovakia, Slovenia, Spain, Switzerland, Turkey, Ukraine, *Uzbekistan.

HOST PLANT. *Pyrus* spp., *Crataegus* spp., *Malus* spp. (Rosaceae).

NOTE. The species has been repeatedly noted in the literature for the territory of Russia (Zhelochovtsev, 1988). Also Gussakovskij (1935) indicated the species for the environs of Maykop, but without detailed label data. In the ZMMU collection we found a specimen of *Janus compressus* collected near Maykop, identified by D. Dovnar-Zapolskij, which was re-identified as *Janus luteipes*. We were unable to find any specimens collected in Russia in all studied museums and collections. Besides, in the catalog of the European sawflies (Taeger *et al*., 2006), this species was not noted for Russia. However, we believe that this species is rare, but present in the fauna of Russia.

***Janus cynosbati* (Linnaeus, 1758)**
Fig. 3C

MATERIAL EXAMINED. **Russia**: Kursk Province: near Kursk, Sapogovo Village, 1.VI 1937, 1♀ (D. Dovnar) [ZMMU]; **Czech Republic**: Moravia: South Znojmo Havraniky, steppe forest, hills, 24.V 2006, 1♀ (A. Lozan, A. Khalaim) [ZISP].

DISTRIBUTION. Russia: European part (Leningradskaya and Kursk Provinces). Austria, Belgium, Czech Republic, Denmark, France, Germany, UK, Greece, Hungary, Italy, Morocco, Netherlands, Poland, Portugal, Slovakia, Spain, Sweden, Switzerland, Turkey, Ukraine.

HOST PLANT. *Quercus pubescens* Willd, *Q. robur* L. (Fagaceae).

NOTE. Despite the widespread distribution of the species in the European part of Russia according to the publications (Zhelochovtsev, 1988), we found only one surviving specimen in collection of ZMMU. Another specimen from ZISP identified by V. Gussakovsky and D. Dovnar as this species is severely destroyed and does not have a geographical label, but it may also been collected on the territory of Russia.

***Janus luteipes* (Lepeletier, 1823)**
Figs 3B, F, G

MATERIAL EXAMINED. **Russia**: St. Petersburg: Moscow highway, 12.V–18.VI 1863, 2♂, 2♀ (A. Moravits) [ZISP]; St. Petersburg, Lakhta Station, 17–18.VI 1911, 1♂ (V. Borovskij) [ZISP]; Leningradskaya Province: Borodinskoe, VII 1976, 1♀ (A. Zinovjev) [ZISP]; Novgorod Province: Eligovo Village, 14.VI 1891, 1♀ (collector unknown) [ZISP]; Yaroslavl Province: env. Yaroslavl, 7.VII 1882, 1♂ (N. Kokujev) [ZISP]; Moscow Province: Dmitrov, 3.V 1949, 1♂ (A. Rozhkov) [ZMMU]; Kaluga Province: 5 km S Tarusa, 30.VI 1997, 1♀ (S. Vasilenko) [ISEA];

Ryazan Province: Gremiachka Village, 29.VII 1912, 1♀ (A. Semenov) [ZISP]; Belgorod Province: Borisovka, Vorskla River floodplain, 11.VI 1973, 1♀ (A. Zinovjev) [ZISP]; Kherson Province: Ascania Nova, 6.VI 1926, 1♀ (G. Medvedev) [ZMMU]; Stavrpol Territory: Svetlograd (Petrovskoe), 22.V 1923, 1♀ (I. Ostashin) [ZMMU]; Republic of Adygea: env. Maykop, southern gardens, 28.IV 1936, 1♂ (collector unknown) [ZMMU]; Sverdlovskaya Province: Sysertsk District, UFU biological station, 2.VII 1979, 1♀ (A. Fomino) [UFU]; Primorsky Territory: Spassk, 22.VI 1961, 1♀ (A. Zhelochovtsev) [ZMMU]. **Georgia**. Tbilisi: Botanical Garden, 11.VI 1959, 1♂ (D. Lozavoi) [ZMMU].

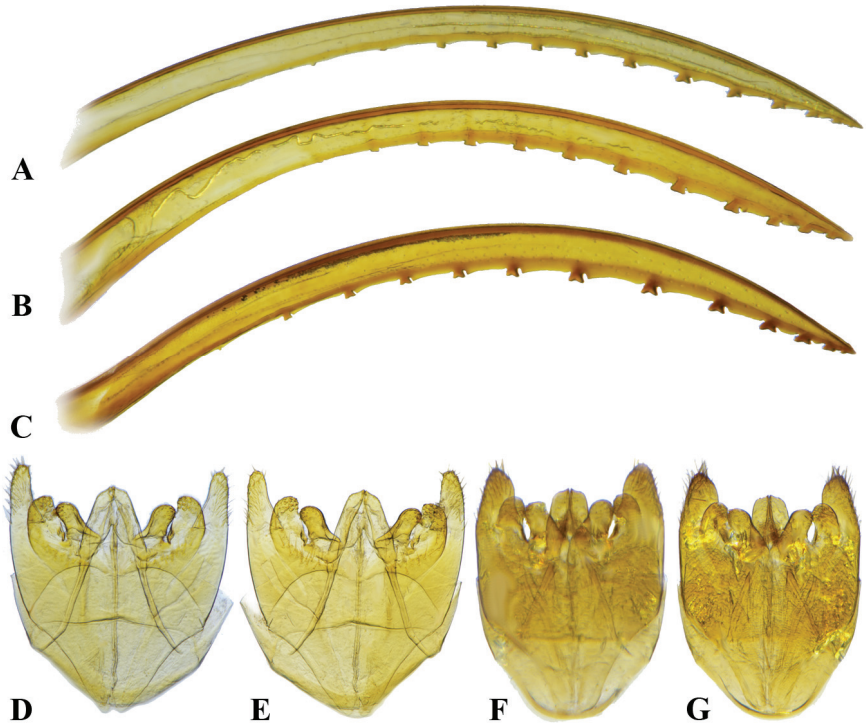

Fig. 3. *Janus compressus* (A, D, E), *J. luteipes* (B, F, G) and *J. cynosbati* (C). A, B, C – lancet, lateral view; D, F – genital capsule, dorsal view; E, G – genital capsule, ventral view.

DISTRIBUTION. Russia: European part (Leningradskaya, Novgorod, *Yaroslavl, Moscow, *Kaluga, Ryazan, and *Belgorod provinces, *Stavropol Territory, *Republic of Adygea), *Urals (Sverdlovsk Provinces) and Far East (Primorsky Territory). Algeria, Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, UK, Hungary, Italy, Netherlands, Norway, Poland, Slovakia, Sweden, Switzerland, Ukraine.

HOST PLANT. *Salix* spp., *Populus* spp. (Salicaceae), ?*Viburnum* spp. (Adoxaceae).

NOTE. According to N.R. Kokuev's determination, the *Janus cynosbati* was recorded in the Yaroslavl Province, but this material is actually belonged to the *J. luteipes* (Basov, 2023). Thus, only *J. luteipes* is reliably found in the Yaroslavl Province.

Key to the Russian species of the genus *Janus*

1(8) Females (unknown in *J. nasutus* sp. n.).
2(3) Abdomen orange with black apex and base. – Saw with 13 teeth (Fig. 3A) .... ***J. compresus***
3(2) Abdomen completely black.
4(5) Head and thorax densely punctate; femora black; tegula brown. – Pronotum along its posterior margin with whitish yellow stripe interrupted in middle; saw with 13 teeth (Fig. 3B) ..... ***J. luteipes***
5(4) Head and thorax sparsely punctate; femora orange-red; tegula yellow.
6(7) In hind leg, femur and trochantellus yellowish-orange, coxa and trochanter yellow with black basal spot (Fig. 1A). Saw with 16 teeth (Fig. 1D) ..... ***J. formosus***
7(6) In hind leg, femur and trochantellus reddish-orange, coxa and trochanter completely black. Saw with 13 teeth (Fig. 3C) ..... ***J. cynosbati***
8(1) Males.
9(12) Abdomen orange; first two tergites black.
10(11) Mesopleuron entirely black; pronotum with only narrow yellow border along its posterior margin; hind coxae, trochanter and trochantellus black. Valviceps converging in dorsal view to their apex at acute angle, their apical part protruding at obtuse angle (Figs 3D, E). Small species, 6.0–8.0 mm ..... ***J. compresus***
11(10) Mesopleuron black and with large yellow spot (Fig. 2C); corners of pronotum and its wide border along posterior margin yellow (Fig. 2B); hind coxae yellow with black base, trochanter and trochantellus completely yellow (Fig. 2H). Valviceps in dorsal view almost parallel, their apical part obtuse (Figs 2I, J). Large species, 8.3 mm .... ***J. nasutus* sp. n.**
12(9) Abdomen completely black or sometimes its apical tergites 1–3 yellowish.
13(14) Head and thorax densely punctate; hind tibia whitish at base; tegula brown. – Pronotum along its posterior margin with yellowish-white stripe interrupted medially. Valviceps in dorsal view almost parallel-sided, its apical part formed obtuse angle (Figs 3F, G) ..... ***J. luteipes***
14(13) Head and thorax sparsely punctate; hind tibia yellow at base; tegula yellow 15
15(16) Pronotum completely black; hind coxa and trochanter black ..... ***J. cynosbati***
16(15) Pronotum black, but along posterior margin with yellow stripe interrupted medially (Fig. 1I); hind coxa and trochanter yellow with black spot at base (Fig. 1H). – Valviceps converge in dorsal view at acute angle, its apical part notched (Figs 1J, K) .... ***J. formosus***

DISCUSSION

Thus, five species of the genus *Janus* are recorded in the fauna of Russia. Most of the species in this genus is rare, and additional material collected in different regions of country is perhaps to expand the distribution data. For example, 13 species of the genus are now known from neighboring China (Wei *et al*., 2006), and it is very likely that some of these ones will be found in the Asian part of Russia in future.

Additional material from the Russian Far East perhaps will help to clarify the distribution of the new species, which is currently known only from the holotype collected in the south of the Primorsky Territory (Khasan District). *Janus formosus* was also known only from the two type specimens for the long time, turned out to be the most widespread species in the south of the Russian Far East.

For other discussed species mainly from the European part of Russia, there is not found in the collections the actual specimens according the distribution data by previous authors. Due to the rarity of the *Janus* species, the accumulation of material occurs slowly and additional collected specimens require the accurate identification.

The genital structures of females and males used for the first time in our key for species identification have shown their effectiveness and may serve as a convenient diagnostic feature.

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