

Linzer biol. Beitr.	54/1	175-181	September 2022
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A new bee species of the *Panurginus niger* group from the Tien Shan Mountains, Central Asia (Hymenoptera, Anthophila, Andrenidae)

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A b s t r a c t : A new bee species of the *Panurginus niger* group from the Tien Shan Mountains in Kyrgyztan and Kazakhstan is described. *Panurginus hartmanni* nov.sp. fits well in the *P. niger* group of small species with narrow gonostylus and inside bent and triangular enlarged penis valve. Also new records of *P. muraviovi* ROMANKOVA & ASTAFUROVA, 2011 and *P. niger* NYLANDER, 1848 are given.

K e y w o r d s : *Panurginus*, *niger* species group, Palearctic, revision.

Introduction

The bee genus *Panurginus* consists of mainly black and small species with few conspicuous characters within the species-groups. The genus has a Holarctic distribution with at least 35 species in the Palearctic region. The East-Palearctic species were intensively revised by ROMANKOVA & ASTAFUROVA (2011) with descriptions of seven new species making a total of 14 species. Of these, six species were included in the *P. niger* group. The species of the *P. niger* group have a distribution from northwestern Europe to the Pacific coast of Siberia. At least three of the species have a wider distribution, either in Asia like *P. niger* NYLANDER, 1848, from Central Europe to Central Asia like *P. labiatus* (EVERSMANN, 1852) or span the whole distribution area of the species-group like *P. romani* AURIVILLIUS, 1914. *P. muraviovi* ROMANKOVA & ASTAFUROVA, 2011 is known from southwest Siberia and Northwest Mongolia, *P. crawfordi* COCKERELL, 1914 is distributed on the Pacific Coast of Russia, Korea and several islands of Japan. *P. arsenievi* ROMANKOVA & ASTAFUROVA, 2011 is the least known species with only three specimens from the Pacific coast of Russia (Primorskiy Kray) and is only provisionally placed into the *P. niger* group (ROMANKOVA & ASTAFUROVA 2011).

Material and Methods

During the last years the author studied the genus *Panurginus* in the entomological collections of the Oberösterreichisches Landesmuseum Linz (OLML) in Austria and the Zoologische Staatssammlung München (ZSM) in Germany. Thereby new records of *Panurginus muraviovi* and *P. niger* were found and an undescribed species discovered. Abbreviations used in the text:

F = flagellomere, S = sternum, T = tergum.

Results

All species of the *P. niger* group could be studied, except for *P. arsenievi* from the pacific coast of Russia, which is only known from the three male type specimen and only provisionally placed in the *P. niger* group. An overview is given in Tab. 1. *Panurginus muraviovi* is recorded for the first time from Kazakhstan from several locations with 50 individuals (25 males, 25 females). *Panurginus niger* is recorded for the first time from southern China, which is also the first record of a *Panurginus* species in the Oriental zoogeographic region (region according to HOLT et al. 2013). Moreover, a new species is described from the Tien Shan mountains in Kyrgyztan and Kazakhstan.

Tab. 1: Overview of important characters to distinguish between the species of the *P. niger* group, according to ROMANKOVA & ASTAFUROVA (2011) and own observations.

Species	Characters of males	Characters of females
<i>P. arsenievi</i> <u>Note: only provisionally in the <i>P. niger</i> group</u>	Clypeus with apico-lateral angles, gonostylus enlarged apically, S 8 extremely reduced, 5-5.5 mm	unknown
<i>P. crawfordi</i>	Labral plate narrow, medially with knob or carina, apical elevation of S 6 wing-like, 5-8 mm	Labral plate narrow, medially with knob or carina, epistomal suture indistinct, 6.5-8 mm
<i>P. hartmanni</i> nov.sp.	Marginal zone of tergite 1-3 short, less than half the length of disc, apical elevation of S 6 with very short bristles, 4.5-5.5 mm	Marginal zone of tergite 1 and 2 short, (less than) half the length of disc, vertex with dense punctures, 4.5-5 mm
<i>P. labiatus</i>	Penis valve apically not triangular enlarged, S 6 apically with small notch where S 7 sticks out, 4.5-6 mm	Terga and clypeus with denser pits (1-2 diameters apart), wing veins yellow, 4.5-6 mm
<i>P. muraviovi</i>	Labral plate triangular, apical margin of S6 not protruding, with semi-circular arch, 5 mm	Terga, scutum and scutellum with scattered punctures, a few diameters away, 5.5-6.5 mm
<i>P. niger</i>	Labral plate rounded, wings brownish, terga with scattered punctures, 4.5-6 mm	Terga with scattered punctures, a few diameters away, wings brownish, scutum and scutellum shagreened, 5.5-6.5 mm
<i>P. romani</i>	Terga shagreened, apical plate of S8 narrow, large body size: 6-8 mm	Terga shagreened, antero-lateral angles of clypeus protruded, large body size: 7-8 mm

***Panurginus muraviovi* ROMANKOVA & ASTAFUROVA, 2011**

Kazakhstan: 1♀, 1♂ Almaty r., 10km W Kalinino, 44°11'N 78°30'E, 1600 alt, 04.06.2016, leg. J. Halada; 22♀♀, 12♂♂ East K. pr., 5km N Samarskoe, 610m, 49°03'38"N 83°22'12"E, 01.06.2016, leg. J. Halada; 2♀♀, 12♂♂ East K. pr., 20km N Zyryanovsk, 500m, 49°54'41"N 84°16'40"E, 03.05.2016, leg. J. Halada; all specimen in coll. OLML

***Panurginus niger* NYLANDER, 1848**

China: 1♀, 1♂ S.China-Yunnan, Jinghong, 15.07.1990, leg. S. Becvar, coll. OLML

***Panurginus hartmanni* nov.sp. (Fig. 1-9)**

Type material: Holotype: ♂, Kirgisien, 9.06.1998, Seidenstr. n At-Bashi, 2100m, N 41°12' E 75° 50', leg. P. Hartmann (Coll. ZSM). Paratypes (14♂♂, 4♀♀): 1♂ same dates as Holotype (Coll. ZSM); 2♂♂, 3♀♀ Kirgisien, 9.06.1998, Korschoy Korgun B. At-Bashi, 2100m, N 41° 07' E 75° 42', leg. P Hartmann (Coll. ZSM and Coll. Hopfenmüller); 11♂, 1♀ Kazakhstan, Almaty pr., 5-10km W Saryzhaz, 1900m, 42°54'37"N 79°30'14"E, leg. J. Halada, 6.6.2016 (10♂♂, 1♀ Coll. OLML, 1♂ Coll. Hopfenmüller).

Diagnosis: *Panurginus hartmanni* fits well in the *P. niger* group with narrow gonostylus and inside bent and triangular enlarged penis valve. The males can be separated by the charactersitic genitalia and pregenital sterna, especially the margin of sternite 6 with its shallow arch and very short bristles. The females of *P. hartmanni* are quite similar to *P. niger*, *P. muraviovi* and *P. labiatus*. Whereas *P. niger* and *P. muraviovi* can be separated by there more scattered punctures on the terga, *P. labiatus* differs by more dense punctures on scutum and more and larger pits on the clypeus. The females of *P. hartmanni* also differ from all other species in the *P. niger* group by the quite straight and short marginal zone of tergite 1 and 2.

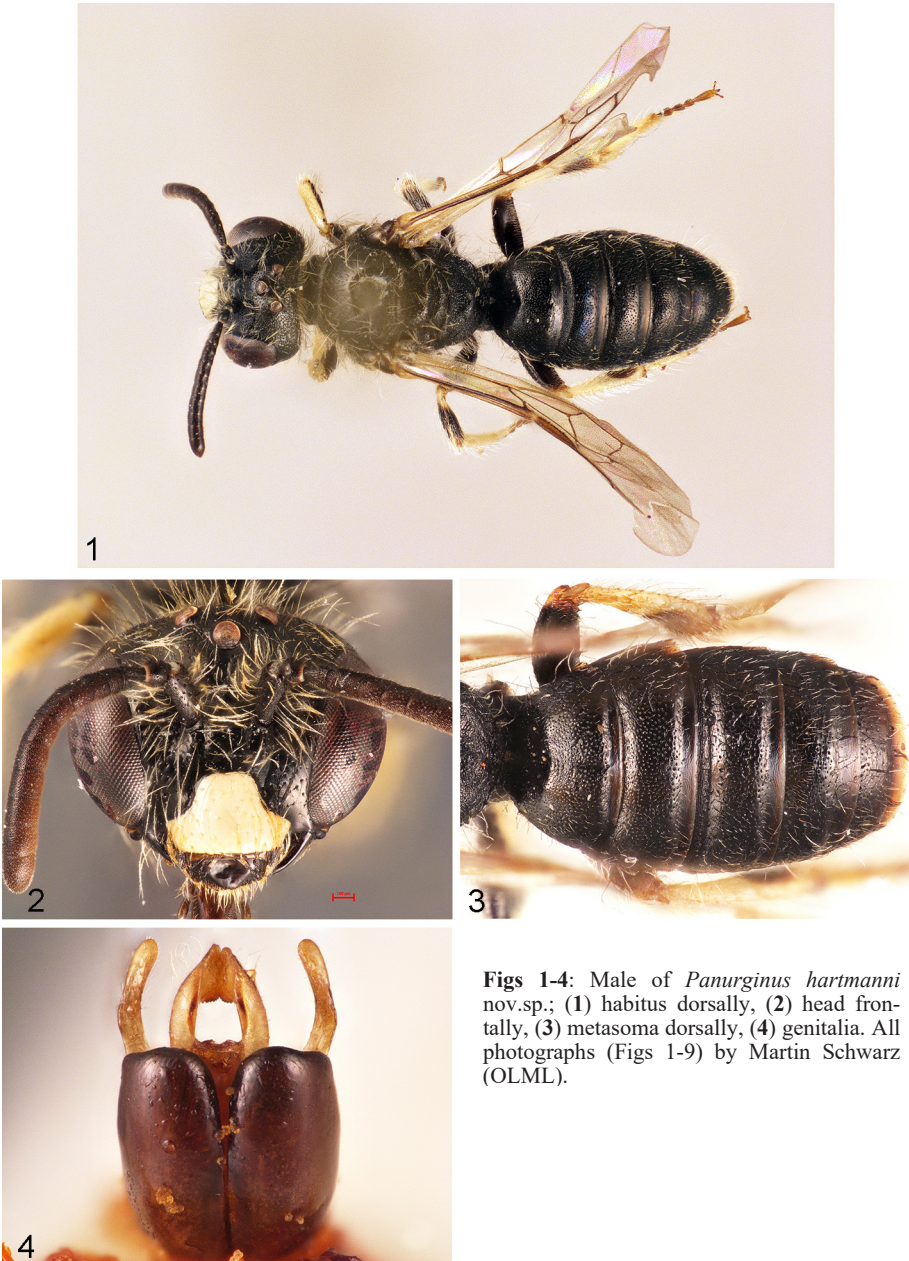
Description of male:

Body length: 4.5-5.5 mm.

Shape: Head transverse. F1 conical, slightly longer than wide apically, F2 and F3 shorter than wide, other flagellomeres about as long as wide, but last one longer than wide. Labral plate narrowly rounded to slightly triangular, with median depression. Facial fovea very small and inconspicuous. Hind basitarsus 3.5-4 times as long as wide. Metasomal terga with marginal zone depressed and relatively parallel, only slightly enlarged medially. Marginal zone of T2 and T3 less than half the length of disc.

Pregenital Sterna & Genitalia: S6 with posterior margin medially elevated to shallow arch with very short bristles. S7 with posterior margin slightly elevated and central shortly divided. S8 with short neck and apical plate bent outside. Gonostylus narrow, mostly parallel-sided, apically rounded, after third of length bowed inward. Penis valve apically triangular enlarged and bent inside, dorsally with a few long erect hairs.

Sculpture: Body generally shiny. Lower part of face with sparse punctures, upper part of face with more dense punctures, mostly 1-2 diameters apart. Scutum and scutellum with sparse punctures on disc, backward denser, especially in the middle. Metanotum densely punctured. Metasomal terga with dense punctures on disc, getting sparser on last terga. Marginal zone of terga without punctures. The specimens from Kazakhstan have denser punctures on the terga than the specimens from Kyrgyztan. Basal and marginal zone of terga slightly shagreened.



Figs 1-4: Male of *Panurginus hartmanni* nov.sp.; (1) habitus dorsally, (2) head frontally, (3) metasoma dorsally, (4) genitalia. All photographs (Figs 1-9) by Martin Schwarz (OLML).

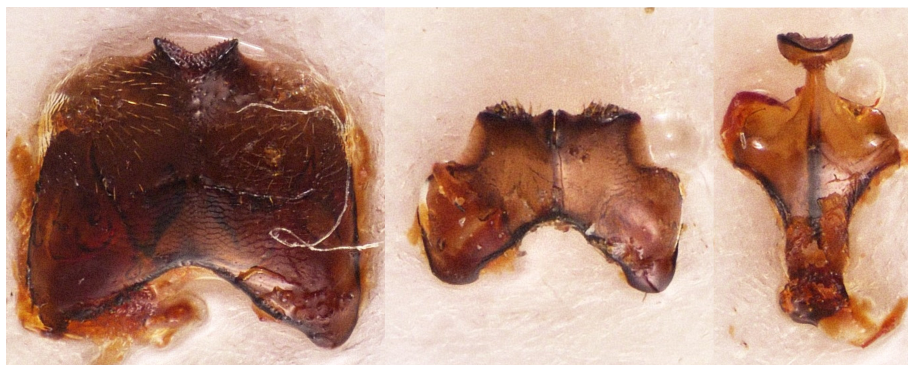


Fig. 5: Metasomal sterna of male *Panurginus hartmanni* nov.sp.: sternum 6 (left), sternum 7 (middle), sternum 8 (right).

Coloration: Wing veins yellow or brownish. Clypeus yellow. Antenna underneath brownish to yellow. Legs partly yellow, especially basitarsi, parts of tibia, tip of femur. Tarsomeres 2-5 brownish to yellow.

Description of female:

Body length 4.5-5.0 mm

Shape: Head slightly transverse. F1 conical, slightly longer than wide apically, F2 and F3 shorter than wide, other flagollemers about as long as wide, but last one longer than wide. Labral plate narrowly rounded to slightly triangular, with median depression. Facial fovea straight, only slightly depressed. Metasomal terga with marginal zone depressed and relatively parallel, only slightly enlarged medially. Marginal zone of T2 about half the length of disc, of T3 about 2/3 the length of disc.

Sculpture: Body generally shiny. Lower part of face with sparse punctures, mostly 3-5 diameters apart, upper part of face more dense punctures, mostly 1-2 diameters apart, on vertex even denser. Scutum and scutellum with sparse punctures on disc, on posterior margin denser, on scutellum also on the middle line. Metasomal terga with dense punctures on disc, getting sparser on last terga. Marginal zone without punctures. Basal and marginal zone of terga slightly shagreened.

Coloration: Wing veins yellow, some slightly brownish. Antenna underneath bright yellow, only flagellomers 1 and 2 dark. Tarsomers yellow or brownish.

Distribution: *Panurginus hartmanni* was found in the Tien Shan mountains of Kyrgyztan and in Kazakhstan near the border to Kyrgyztan. The two locations are about 400 km away from each other. The specimens were found between 1,900 m and 2,100 m altitude. At the two locations in Kyrgyztan *Panurginus hartmanni* was collected together with *Halictus leucahenaesus* (det. Ebmer).

Etymology: The new species is named after the German biologist Peter Hartmann (1947-2010), an enthusiastic bee specialist who collected the new species in Kyrgyztan (DÖTTERL 2015).



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Fig. 6-9: Female of *Panurginus hartmanni* nov.sp.; (6) habitus dorsally, (7) head frontally, (8) metasoma dorsally, (9) head dorsally (vertex).

Zusammenfassung

Eine neue Bienenart aus der *Panurginus niger*-Gruppe wird aus dem Tien-Shan-Gebirge in Kirgisien und Kasachstan beschrieben. *Panurginus hartmanni* nov.sp. passt gut in die *P. niger*-Gruppe, die aus kleinen Arten besteht, bei denen die Männchen einen schmalen Gonostylus und eine eingedrehte, am Ende dreieckig verbreiterte Penisvalve haben. Außerdem wird über neue Fundorte von *P. muraviovi* und *P. niger* berichtet.

Acknowledgements

I am greatly indebted to Martin Schwarz (OLML) for providing the photographs of *P. hartmanni*. I want to thank Esther Ockermüller (OLML) and Stefan Schmidt (ZSM) for the support of my studies.

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Zeitschrift/Journal: [Linzer biologische Beiträge](#)

Jahr/Year: 2022

Band/Volume: [0054_1](#)

Autor(en)/Author(s): Hopfenmüller Sebastian

Artikel/Article: [A new bee species of the Panurginus niger group from the Tien Shan Mountains, Central Asia \(Hymenoptera, Anthophila, Andrenidae\) 175-181](#)