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Three new species of the subgenus *Trichocellus* GANGLBAUER 1891 of the genus *Dicheirotichus* JACQUELIN DU VAL 1857 from the East Palaearctic, with description of the male of *D. stenothorax* (KABAK & KATAEV 1994) (Coleoptera, Carabidae)

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A b s t r a c t : Three new species of the subgenus *Trichocellus* GANGLBAUER 1891 of the genus *Dicheirotichus* JACQUELIN DU VAL 1857 are described: *D. himalayanus* spec. nova (Nepal), *D. latimanus* spec. nova (Altai-Sayan Mountain Land), and *D. subangularis* spec. nova (East Kazakhstan and West Mongolia). Description of the male of *D. stenothorax* (KABAK & KATAEV 1994) is given, and data for new material belonging to this species from European Russia and Kazakhstan is provided.

Key words : Coleoptera, Carabidae, Harpalini, Stenolophina, *Dicheirotichus*, *Trichocellus*, taxonomy, new species, East Palaearctic.

Introduction

Among material of the genus *Dicheirotichus* JACQUELIN DU VAL 1857 collected recently in various regions of the East Palaearctic, we discovered three new species of the subgenus *Trichocellus* GANGLBAUER 1891, their descriptions are provided herein. We include also new records and the description of the male of *D. stenothorax* KABAK & KATAEV 1994 described originally from a single female.

Material

The following abbreviations are used for the places of deposition of the material examined:

- ISEAN.....Institute of Systematic and Ecology of Animals, Siberian Branch, Russian Academy of Sciences, Novosibirsk, Russia
MPU.....Moscow State Pedagogical University, Moscow, Russia
NME.....Naturkundemuseum Erfurt, Erfurt, Germany
TMBTermészettudományi Múzeum, Budapest, Hungary
ZISPZoological Institute, Russian Academy of Sciences, St. Petersburg, Russia
cIKAB.....Coll. I.I. Kabak, St. Petersburg, Russia
cKOMColl. E.V. Komarov, Volgograd, Russia

cSCHM..... Coll. J. Schmidt, Rostock, Germany
 cSHIL..... Coll. V.G. Shilenkov, Irkutsk, Russia
 cWGL..... Coll. A. Weigel, Pößneck, Germany
 cWR Coll. D.W. Wrase, Berlin, Germany

Methods and Acknowledgements

Measurements were taken as follows: body length from anterior margin of clypeus to elytral apex; width of head as maximum linear distance across head, including compound eyes (WHmax), and as minimum linear distance across neck constriction just behind eyes (WHmin); length of pronotum (LP) along its median line; length of elytra (LE) from basal bead in scutellar region to apex of sutural angle; maximum width of pronotum (WP) and elytra (WE) at their broadest point.

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Results

***Dicheirotrichus (Trichocellus) stenothorax* (KABAK & KATAEV 1994) (Figs 7-10)**

Trichocellus (s. str.) *stenothorax* KABAK & KATAEV 1994: 296.

T y p e m a t e r i a l : Holotype: ♀, Kirghizstan, western portion of Kungey Alatau, Boom Gorge, Chilibili River, 19.V.1990, I. Kabak leg. (ZISP).

A d d i t i o n a l m a t e r i a l :

R u s s i a : Volgograd Prov.: 1♀, Gornaya Polyana, Vodnyj vill. env., reedbed, near water, 8.VII.1983, E. Komarov leg. (ZISP); 10 specimens (♂♂ and ♀♀), Elton Lake env., 24.IV.1989, E. Komarov leg. (cKOM; ZISP); 2♂♂, 1♀, Elton Station env., bed of dry freshwater lagoon, under stones, 18.IV.1985, E. Komarov leg. (MPU). - Samara Prov.: 1♂, Siniy Syrt, 13 km SSW of Kostino, right bank of Rostasha River, slope of balka, 28.VII.-28.VIII.1993, Smelyanskij leg. (ISEAN).

K a z a k h s t a n : 1♀, Transili Alatau, Zhenishke env., 1600 m, 18.VI.1988, M. Childibaev leg. (cIKAB); 1♀, Central Kazakhstan, Sultan-Keldy, 29.V.1980 (cIKAB); 1♂, 3♀♀, Dzhanibek env., 12.IX.2001, J. Miatleuski leg. (cWR, ZISP).

A d d i t i o n a l d e s c r i p t i o n : Body length 4.1-4.6 mm, width 1.6-1.8 mm. Male: As in female, dorsal microsculpture recognizable only at elytral apex, meshes more or less isodiametric. Apical sternum with two marginal setae. Protarsi (Fig. 8) weakly dilated, their 1st-4th tarsomeres approximately as long as wide, each with biseriate vestiture ventrally. Mesotarsi simple, not dilated. Median lobe of aedeagus (Figs 9-10) bent just after basal bulb, with almost straight apical portion (lateral aspect); sides rounded in basal half, more or less rectilinearly converging to acute apex (dorsal aspect);

internal sac with symmetrical pattern of tiny spines, and besides, with two (sometimes connected) groups of larger spines apically.

Proportions (based upon 5 males and 8 females): WP/LP = 1.23-1.34; LE/WE = 2.88-3.33; WE/WP = 1.46-1.55; WHmax/WP = 0.77-0.81; WHmin/WP = 0.61-0.65.

D i s t r i b u t i o n : Steppe zone from Volga to northern Tien Shan.

E c o l o g y : According to KALYUZHNYAYA et al. (2000), in the Lower Volga area the beetles occur in wet saline habitats with rich vegetation near water.

R e m a r k s : This species was described from a single female collected in the Boom Gorge, in the northern Tien Shan, and more recently, based on our determinations, it was recorded without any taxonomic remarks and additional characteristics from the Lower Volga area of Russia and Kazakhstan (KRYZHANOVSKIJ et al. 1995; KALYUZHNYAYA et al., 2000; KOMAROV 2002; JAEGER & KATAEV 2003). Unfortunately, males from the Tien Shan are still unknown and the male characteristics of *D. stenothorax* listed above are based on specimens from European Russia and western Kazakhstan. It should be noted, however, that the specimens from Russia and Kazakhstan slightly differ from the holotype in some external characters and may really represent a geographic form or even a separate species if it can be shown that their male genitalia are also different. The specimens from European Russia and Kazakhstan are scarcely larger (4.2-4.6 mm) than the holotype (4.1 mm), their metepisterna (including those of the female from the Transili Alatau) are longer (Fig. 7) and the pronotum is sometimes wider and with more rounded sides. At the moment we prefer to treat them as conspecific, but examination of males from the Tien Shan, particularly from the type locality, is required to verify this treatment.

By the male genitalia with two groups of larger spines in the internal sac, *D. stenothorax* is somewhat similar to *D. obscuricollis* (REITTER 1899) which, however, clearly differs from the former in having the pronotum almost throughout black and with much more fine and sparse punctation on disc. In addition, the median lobe of the aedeagus of *D. obscuricollis* is a little more arcuate, more evenly rounded at sides and with a different pattern of tiny spines in the internal sac. In the external characters, the specimens of *D. stenothorax*, particularly from European Russia and Kazakhstan with their long metepisterna, are very similar to small specimens of *D. discolor* (FALDERMANN 1836) and in some cases the discrimination of females is very difficult. *D. stenothorax* may be distinguished from *D. discolor* by, on average, smaller body, longer pronotum, and shorter, more sparsely punctured elytra with lower number of umbilicate pores in the posterior group of the series (usually seven, more rarely six or eight, in *D. stenothorax*, and eight, rarely seven, in *D. discolor*). The median lobe of the aedeagus of *D. discolor* differs notably from that of *D. stenothorax* in having the sides more evenly rounded and the internal sac has a different pattern of tiny spines and is without any spiny patches in the apical portion of the median lobe. The geographical ranges of both species seem not to be overlapping and this fact also aids determination. *D. discolor* with its two subspecies, the nominotypical one and *D. d. punctidorsis* (REITTER 1899), is distributed mainly to the south of the range of *D. stenothorax*, from Transcaucasia through the deserts of Middle Asia to western China.

Dicheirotrichus (Trichocellus) himalayanus spec. nova (Figs 1-6)

Type material: Holotype ♂: Nepal, Karnali Prov., Jumla Distr., Gothichaur Valley, Hochebene, 3800 m, 29°12'N 82°18.5'E, Gesiebe [sifted], 11.VI.1997, M. Hartmann leg. (NME). Paratypes: 43 ♂♂, 27 ♀♀, same data as holotype (NME; ZISP; cWR); 3 ♂♂, 1 ♀, Hochtal Gothichaur, 29°12.10'N 82°18.56'E, 3000-3300 m, 9.VI.1997, J. Weipert leg. (NME); 5 ♂♂, 9 ♀♀, same but 2900-3050 m, 10.VI.1997, J. Weipert leg. (NME); 57 ♂♂, 20 ♀♀, same but 2900 m, 13.VI.1997, J. Weipert leg. (NME; ZISP; cWR); 12 ♂♂, 8 ♀♀, same but 2850 m, nahe Lager, Gesiebe, 10.VI.1997, Grill leg. (NME); 1 ♀, Jumla Distr., 2 km W Gothichaur, 3000 m, 1.V.1995, A. Weigel leg. (cSCHM); 25 ♂♂, 12 ♀♀, Jumla Distr., Gothichaur Khola SE, 29°12'10"N 82°18'56"E, 2850 m, 12.VI.1997, A. Weigel leg. (NME); 5 ♂♂, 4 ♀♀, same but 2800 m, 8.VI.1997, A. Weigel leg. (cWGL); 1 ♂, 5 ♀♀, same but 29°12'10"N 82°18'65"E, 2800 m, 12.VI.1997, A. Weigel leg. (NME).

Description: Body length 3.3-4.3 mm, width 1.4-1.8 mm.

Colour: Dorsum shiny, largely black, with lateral areas of head behind eyes, clypeus apically, labrum at least externally, middle portions of mandibles, pronotum extremely narrowly along lateral beads and more widely along apical and basal margins, elytra on suture and in humeral areas (except for constantly dark 9th interval) reddish brown. Underside black; epipleurae of pronotum and elytra reddish brown, but epipleurae of elytra distinctly infusate in basal half. Palpi, antennae and legs reddish brown; palpomeres (except for apical half of apical one), antennomeres (except for first one), femora, apices of tibiae and tarsi more or less distinctly infusate. Pubescence yellow.

Head: Comparatively large (WHmax/WP = 0.76-0.83; WHmin/WP = 0.63-0.68), coarsely and irregularly punctured, usually with more or less wide unpunctured areas on clypeus, frons and vertex medially. Each puncture bearing a short seta. Eyes large, comparatively weakly convex, almost reaching buccal fissure (separated from it by very short distance much less than width of first antennomere). Tempora short, convex. Clypeus sometimes slightly depressed or indistinctly bordered along apical margin. Labrum with nearly straight apical margin. Dorsal microsculpture usually invisible, sometimes weak isodiametric meshes recognizable on areas behind eyes. Mandibles acute at apices. Antennae extending slightly beyond elytral base, with middle and preapical antennomeres rather short, each approximately one and a half times as long as wide.

Pronotum (Fig. 1): Moderately convex, 1.30-1.42 times as wide as long; widest in apical third. Its sides basally either almost rectilinearly converging posteriad or slightly rounded. Apical margin hardly emarginate, bordered only laterally. Basal margin very broadly rounded medially, oblique laterally, with rather distinct bead along oblique portion on each side, approximately equal to apical margin, narrower than elytral base, and clearly ciliate on basal ridge. Apical angles not protruding anteriad, narrowly rounded at apices. Basal angles very obtuse, usually widely rounded at apices, each bearing a long seta. Lateral furrows narrow throughout. Basal foveae large and wide, reaching basal pronotal margin, separated from each other and usually from sides by convexities. Areas at basal angles sometimes flattened. Pronotal surface coarsely and comparatively sparsely punctured mainly along margins and along median line, sometimes with scattered punctures in central portion of disc on each side between median line and lateral margin. Puncturation within basal foveae more dense and confluent. Each puncture bearing a short seta. Dorsal microsculpture absent.

Elytra: Moderately convex, 1.43-1.50 times as long as wide, 2.93-3.13 times as long and 1.45-1.58 times as wide as pronotum, markedly widened posteriad, widest just behind middle, and evenly rounded at sides. Humeri comparatively prominent, widely rounded

at apices. Subapical sinuation very weak. Sutural angle narrowly rounded at apex. Basal bead weakly sinuate, arcuately curving inside humerus up to lateral margin. Parascutellar pore puncture present, large. Third interval in apical third with a discal setigerous pore near second stria. Posterior group of umbilicate series consisting of usually seven (more rarely six or eight) setigerous pore punctures. Striae unpunctured, weakly impressed, very fine along sides, particularly basally; 7th and 8th striae becoming evanescent and absent in basal half; 6th stria not visible near basal bead of elytra. Intervals rather flat, at most weakly convex in medio-basal portion of elytra, weakly narrowed posteriad. Punctuation of intervals on elytral disc comparatively coarse, with two punctures in a transverse row across each interval at middle. Each puncture bearing a short, posteriorly inclined seta. Microsculpture recognizable only latero-apically, meshes more or less isodiametric.

Wings: Developed, longer than elytra.

Ventral surface: Metepisterna (Fig. 2) long and narrow, strongly narrowed posteriad. Anal sternum rounded at apex, with one pair of marginal setae in male and two pairs in female.

Legs: 5th tarsomere with two pairs of ventro-lateral setae. Metatarsus somewhat stout, with slightly diverging sides, its length approximately equal to width of head measured across neck constriction (WHmin); first metatarsomere markedly longer than second and slightly shorter than second and third together. In male protarsi (Fig. 6) very weakly dilated, with biseriate vestiture ventrally; mesotarsi not dilated.

Female genitalia (Fig 3): Hemisternite asymmetrical, without spines or setae. Basal stylomere slightly widened apicad, also without spines or setae. Apical stylomere notably arcuate, moderately long, with a peg-like seta on outer ventral margin before middle.

Median lobe of aedeagus (Figs 4-5): Weakly and somewhat evenly arcuate, with almost straight apical portion and weakly swollen at apex (lateral aspect); sides rather evenly rounded, apex blunt (dorsal aspect). Internal sac with asymmetrical pattern of tiny spines and with three (sometimes united into one) patches of larger spines in apical portion of median lobe.

D i s t r i b u t i o n : Central Himalaya. Known only from several localities, all within the Jumla District, Karnali Province, Nepal. The beetles were collected at altitudes of 2800-3800 m.

E t y m o l o g y . The species epithet refers to the Himalaya, the area of the geographical distribution of the new species.

R e m a r k s : This new species is very similar and apparently closely related to *D. obscuricollis* (REITTER 1899) from Middle Asia. Both species share many character states of coloration and morphology, including genital characters. *D. himalayanus* spec. nova differs markedly from *D. obscuricollis* in having the body notably smaller, the antennomeres shorter, the pronotum more coarsely punctured, the elytra darker and comparatively shorter, and in the well developed left apical spiny patch in the internal sac (in *D. obscuricollis* this spiny patch is usually absent).

***Dicheirotichus (Trichocellus) latimanus* spec. nova (Figs 11-18)**

T y p e m a t e r i a l : Holotype ♂: Russia: Khakassia, Tashtynskij Distr., Bolshoy On Valley, env. Bolshoy On vill., 21-24.VII.1998, A. Brinev leg. (ZISP). Paratypes: 2♂♂, 1♀, same data as

holotype (MPU, ZISP); 1♂, Kemerovo Prov., Tisul Distr., Gavrilovka, shore of mountain brook, 13.VII.1979, V. Eryshov leg. (cSHIL); 1♂, Altai, Gornoaltayskaya AO, near Turochak, Snižek leg. (cWR); 2♂♂, Buryatia, Tunkinskie Goltsi, 30 km NNE of Turan, upp. of Shumak River, 1600-1800 m, forest, 17.VIII.2000, A. Vorontsov leg. (ISEAN).

D e s c r i p t i o n : Body length 4.6-5.1 mm, width 1.8-2.1 mm.

Colour: Dorsum largely reddish brown, shiny. Head usually strongly infusate, almost throughout black, or with bases of mandibles, apical margin of clypeus and lateral areas before and behind eyes pale. Pronotum with large central blurred transverse dark macula sometimes reaching lateral margins. Elytra rather strongly infusate in apical two-thirds, with pale sutural intervals. Epipleurae of pronotum pale. Epipleurae of elytra infusate anteriorly. Underside black. Appendages reddish brown but apical palpomeres, antennae from 4th (sometimes from 3rd or even 2nd) antennomere, and metatarsi (sometimes also mesotarsi) distinctly infusate. Pubescence yellow.

Head: Relatively large (WHmax/WP = 0.77-0.81; WHmin/WP = 0.59-0.62), with very coarse and dense puncturation areas under and particularly behind eyes, also on vertex, and with more fine puncturation around frontal foveae, sometimes also on frons and along apical margin of clypeus, but usually clypeus, central part of frons and anterior part of vertex unpunctured. Each puncture bearing a short seta. Eyes large, moderately or strongly convex, separated from buccal fissure by distance much lesser than width of first antennomere. Tempora rather short, convex. Clypeus depressed along apical margin. Labrum with nearly straight apical margin. Dorsal microsculpture in male usually not visible, in female (and rarely in male) obliterate isodiametric and weakly transverse meshes recognizable on clypeus and on areas behind eyes. Mandibles acute at apices. Antennae rather long, extending approximately to a quarter of elytra, with middle antennomeres about two times as long as wide.

Pronotum (Fig. 11): Weakly convex, slightly flattened basally, 1.34-1.41 times as wide as long, widest in apical third, with sides basally more or less rectilinearly converging posteriad. Apical margin weakly arcuately emarginate, bordered only laterally. Basal margin nearly straight medially, clearly oblique laterally, with more or less distinct bead along oblique portion on each side, approximately equal to apical margin, notably narrower than elytral base, and ciliate on basal ridge. Apical angles not protruding anteriad, rounded at apices. Basal angles distinct, obtuse, usually with sharp apices, each bearing a moderately long seta. Lateral furrow narrow throughout and lateral depressions not developed. Basal foveae large and narrow, usually reaching basal pronotal margin and curved slightly to sides apically, separated from each other and in most cases also from sides by convexities; sometimes areas near basal angles slightly flattened. Pronotal surface rather coarsely and densely punctured along margins (punctures in basal foveae confluent) and more finely and sparsely on disc; central part of pronotum often almost unpunctured. Each puncture bearing a short seta. Dorsal microsculpture usually invisible, sometimes obliterate meshes recognizable at apical and basal angles.

Elytra: Moderately convex, elongated, 1.50-1.60 times as long as wide, 3.00-3.20 times as long and 1.40-1.49 times as wide as pronotum, weakly widened posteriad and broadly rounded at sides; widest behind middle. Humeri slightly prominent, evenly and rather broadly rounded at apices. Subapical sinuation weak. Sutural angle narrowly rounded at apex. Basal bead slightly sinuate, arcuately curving inside humerus up to lateral margin. Parascutellar setigerous pore puncture present, large. Third interval in apical third or just before with a discal setigerous pore near second stria. Posterior group of umbilicate

series consisting of seven or eight setigerous pores. Striae unpunctured, slightly crenulate, weakly impressed on disc, superficial along elytral sides, particularly basally; 7th stria obliterate at basal bead of elytra. Intervals rather flat, at most weakly convex in basal half, weakly narrowed posteriad. Puncturation of intervals on elytral disc somewhat coarse, with usually two (rarely one or three) punctures in a transverse row across each interval at middle. Each puncture bearing a short, posteriorly inclined seta. Microsculpture consisting of isodiametric meshes, in male clearly visible only in apical quarter, along basal bead and on 1-2 lateral intervals; in female evanescent meshes hardly recognized also on disc.

Wings: Fully developed.

Ventral surface: Metepisterna (Fig. 14) markedly longer than wide, strongly narrowed posteriad. Anal sternum rounded at apex, with one pair of marginal setae in male and two pairs in female.

Legs: 5th tarsomere with three pairs of ventro-lateral setae. Metatarsus comparatively stout, a little shorter than width of head across eyes, with almost triangular tarsomeres; 1st metatarsomere much longer than second and slightly shorter than second and third together. In male protarsi (Fig. 12) rather strongly dilated, with spongy vestiture ventrally; mesotarsi (Fig. 17) distinctly, even if rather weakly, dilated and with biseriate vestiture ventrally (for comparison female mesotarsi - Fig. 18).

Female genitalia (Fig. 13): Hemisternite asymmetrical, without spines or setae. Basal stylomere rather strongly widened apicad, also without spines or setae. Apical stylomere weakly arcuate, somewhat long, with a peg-like seta on outer ventral margin in basal third.

Median lobe of aedeagus (Figs 15-16): Arcuate, with apex distinctly curved dorsad (lateral aspect), markedly dilated apically, its sides rather strongly sinuate just behind middle (dorsal aspect). Internal sac with asymmetrical pattern of tiny spines, without larger spines or teeth.

D i s t r i b u t i o n : This new species seems to be confined to the Altai-Sayan Mountain Land.

E t y m o l o g y : The species epithet is based on two Latin words, *latus* meaning 'wide' and *manus* meaning 'hand', referring to the dilated mesotarsi and strongly dilated protarsi, characteristic of the new species.

R e m a r k s : *D. latimanus* spec. nova is easily distinguished from all the other species of the genus by the mesotarsomeres 1-4 of males dilated and with adhesive vestiture ventrally. Another prominent distinctive feature of this new species is the median lobe of the aedeagus notably dilated apically. In all other species of *Dicheirotichus* known to us, the male mesotarsi are simple (not dilated) and the median lobe of the aedeagus is much narrower apically. At the same time, *D. latimanus* spec. nova is very similar in other character states, including the shape of pronotum with distinct basal angles and the details of the internal sac of the median lobe, to *D. angularis* (REITTER 1899) from East Siberia; females of both species are difficult to separate. In addition to the two distinctive characters listed above, *D. latimanus* spec. nova may be distinguished from *D. angularis* by having the male protarsi more strongly dilated, the apical portion of the median lobe of the aedeagus clearly curved dorsad (the median lobe of *D. angularis* is illustrated in Figs 19-20), the pronotum relatively wider, the elytra slightly longer, and the elytral

microsculpture more distinct and more widely distributed (in both sexes of *D. angularis*, meshes recognizable only apically). In our opinion, *D. latimanus* spec. nova and *D. angularis* seems to be two closely related and probably vicariant species. It is most likely also that the dilated male mesotarsi and the very wide apical portion of the apical lobe characteristic of *D. latimanus* spec. nova should be treated as autapomorphies evolved in this species after its separation from *D. angularis*.

***Dicheirotrichus (Trichocellus) subangularis* spec. nova (Figs 21-27)**

Type material: Holotype ♂: Kazakhstan, East Kazakhstan Province, flood plain of Chernyy Irtysh River, 12 km SW of Buran, 14.VI.1997, R. Dudko & V. Zinchenko leg. (ISEAN). **Paratypes:** 3 ♂♂, 3 ♀♀, same data as holotype (ISEAN, ZISP, cWR). 1 ♀: Mongolia: Chovd aimak, Bulgan gol, 10 km E Jarantaj, willow forest, 22.V.1974, R. Piechocki leg. (TMB). 1 ♀, "Siberia, Altai" (ex coll. V. Lutshnik) (ZISP).

Description: Comparatively large, body length 4.9-5.4 mm, width 2.1-2.3 mm.

Colour: Dorsum largely brownish yellow, shiny; head on clypeus, frons, vertex medially and margins of mandibles rather strongly infusate, almost black; pronotum either unicolorous or somewhat infusate on each side of disc between median line and lateral margin; each elytron with dark brown or black longitudinal macula slightly variable in size but usually located on 2nd interval medially and on 3rd-4th intervals behind middle, with distal margin of macula removed from elytral apex on distance about one-fifth of elytral length. Sutural intervals pale or more or less strongly infusate between maculae. Underside of head and prosternum brown or dark brown, mesosternum, metasternum and abdominal sternites black. Epipleurae of pronotum and elytra brownish yellow, not infusate. Legs, antennae and palpi more or less unicolorous, brownish yellow, but usually slightly lighter than dorsum (at most antennae scarcely infuscated from 4th antennomere). Pubescence yellow.

Head: Medium sized (WHmax/WP = 0.74-0.78; WHmin/WP = 0.56-0.60), coarsely and irregularly punctured almost throughout (clypeus usually only externally), with more sparse punctures on frons and vertex. Each puncture bearing a short seta. Eyes large, nearly hemispherical, separated from buccal fissure by distance much less than width of first antennomere. Tempora short, slightly convex. Clypeus distinctly depressed along apical margin. Labrum with almost straight apical margin. Dorsal microsculpture visible on clypeus apically, and on areas under and behind eyes; consisting of fine more or less isodiametric meshes. Mandibles acute at apices. Antennae moderately long, extending beyond elytral base approximately up to one fifth of elytra, with middle antennomeres about 1.8-2.0 times as long as wide.

Pronotum (Fig. 21): Weakly convex, flattened basally, relatively narrow, 1.28-1.38 times as wide as long, widest in apical third. Its sides basally almost rectilinearly converging posteriad. Apical margin weakly emarginate, almost straight medially, bordered only laterally. Basal margin rounded medially, oblique laterally, with distinct bead along oblique portion on each side, approximately equal to apical margin, much narrower than elytral base, and clearly ciliate on basal ridge. Apical angles not protruding anteriad, usually slightly blunt at apices. Basal angles obtuse, with sharp apices, each bearing a long seta (latter broken off in many specimens). Lateral furrows narrow throughout and lateral depressions not developed. Basal foveae somewhat large and narrow, reaching basal pronotal margin basally and curved slightly to sides apically, separated from each other and from sides by convexities. Pronotal surface almost throughout punctured and

pubescent, more coarsely and densely along margins, more finely and sparsely in central portion. Punctures confluent and particularly coarse in basal foveae. Each puncture bearing a short seta. Dorsal microsculpture on disc invisible, sometimes strongly evanescent meshes poorly recognizable only along sides, mainly near apical angles, and basally.

Elytra: Moderately convex, 1.45-1.52 times as long as wide, 2.87-3.07 times as long and 1.47-1.55 times as wide as pronotum, slightly widened posteriad (widest behind middle), and rounded at sides. Humeri prominent, evenly rounded. Subapical sinuation weak. Sutural angle narrowly rounded at apex. Basal bead weakly sinuate and arcuately curving inside humerus up to lateral margin. Parascutellar setigerous pore puncture present. Third interval just before apical third with a discal setigerous pore near second stria. Posterior group of umbilicate series consisting of eight setigerous pores. Striae unpunctured, on disc slightly impressed throughout, along elytral sides finer, superficial; 7th stria obliterate at basal bead. Intervals largely weakly convex, almost flat apically, weakly narrowed posteriad. Puncturation of intervals on elytral disc rather fine, with two, sometimes three, punctures in a transverse row across each interval at middle. Each puncture bearing a short, posteriorly inclined seta. Microsculpture consisting of fine, more or less isodiametric meshes, in male visible apically, basally, and on 3-4 lateral intervals, in female meshes extended more widely, but generally absent or strongly evanescent in central part of elytral disc.

Wings: Fully developed.

Ventral surface: Metepisterna (Fig. 22) long and narrow, strongly narrowed posteriad. Anal sternum rounded at apex, with one pair of marginal setae in male and two pairs in female.

Legs: Fifth tarsomere with two, sometimes three, pairs of ventro-lateral setae. Metatarsus slender, a little longer than width of head across eyes, with tarsomeres almost parallel-sided; first metatarsomere notably longer than second but shorter than second and third together. In male protarsi (Fig. 23) moderately dilated and with biseriate vestiture ventrally; mesotarsi simple.

Female genitalia (Fig. 27): Hemisternite asymmetrical, without spines or setae. Basal stylomere slightly widened apicad, also without spines or setae. Apical stylomere weakly arcuate, moderately long, with a short peg-like seta on outer ventral margin before middle.

Median lobe of aedeagus (Figs 24-28): Weakly and rather evenly arcuate, with nearly straight apical portion (lateral aspect); sides more or less roundly converging to acute apex, with hardly recognized sinuations medially (dorsal aspect). Internal sac with symmetrical pattern of tiny spines, without larger spines or teeth.

D i s t r i b u t i o n : This new species is known from East Kazakhstan and West Mongolia. It ranges probably along southern macroslopes of the Altai Mountains.

E t y m o l o g y : The species epithet is based on the Latin prefix *sub-* and the Latin word *angularis* meaning 'angular', referring to the rather distinct basal angles of the pronotum of the new species.

R e m a r k s : *D. subangularis* spec. nova is easily recognizable by the rather large body, the somewhat pale coloration, the shape of pronotum with distinct basal angles, the punctured elytra, the comparatively strongly dilated male protarsi, and the genital characteristics. In the habitus, particularly in the shape of the pronotum, this new species

is similar to *D. angularis* and *D. latimanus* spec. nova, but distinctly differs from them in having the body larger, the elytra relatively wider, the general coloration paler (always with pale elytral apex and epipleurae), the dorsal puncturation more fine, the metatarsi more slender and the apical lobe of the aedeagus (in dorsal view) more strongly narrowed apicad, with a more acute apex, and with a nearly symmetrical pattern of tiny spines in the internal sac. The male protarsi of *D. subangularis* spec. nova are only a little less dilated than those of *D. angularis*, but much narrower than those of *D. latimanus* spec. nova.

Zusammenfassung

Aus der Untergattung *Trichocellus* GANGLBAUER 1891 der Gattung *Dicheirotichus* JACQUELIN DU VAL 1857 werden drei Arten beschrieben: *D. himalayanus* spec. nova (Nepal), *D. latimanus* spec. nova (Bergland des Altai-Sayan Komplexes) und *D. subangularis* spec. nova (Ost-Kasachstan und West-Mongolei). Weiterhin wird das bisher unbekannte Männchen von *D. stenothorax* (KABAK & KATAEV 1994) beschrieben und aufgrund von neuem Material aktuelle Daten zur Verbreitung dieser Art aus dem europäischen Russland und aus Kasachstan mitgeteilt.

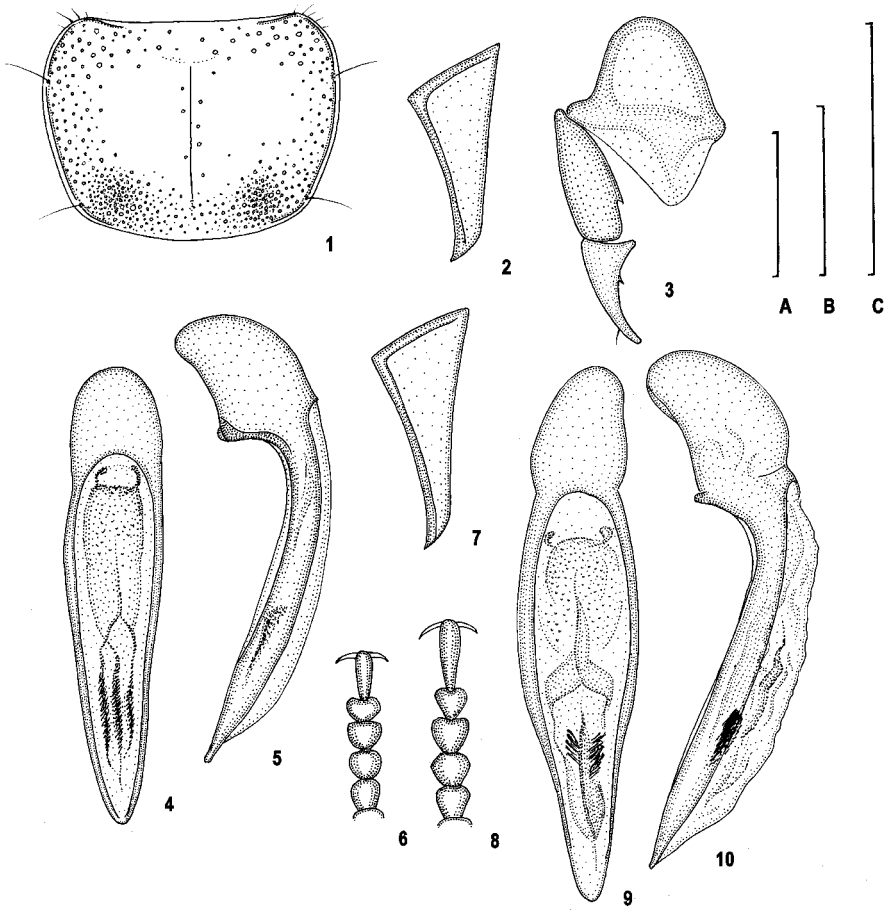
References

- JAEGER B. & B.M. KATAEV (2003): Stenolophina: 397-406. — In: LÖBL L. & A. SMETANA (Eds). Catalogue of Palaearctic Coleoptera. Volume 1. Archostemata – Myxophaga – Adephaga. Stenstrup: Apollo Books: 1-819.
- KABAK I.I. & B.M. KATAEV (1994): Two new species of the genus *Trichocellus* from the Tien Shan (Coleoptera, Carabidae). — *Zoosystematica Rossica* 2 (2), 1993: 293-296.
- KALYUZHNYAYA N.S., KOMAROV E.V. & L.B. CHEREZOVA (2000): Zhestkokrylye nasekomye (Insecta, Coleoptera) Nizhnego Povolzh'ya. — Volgograd: 1-204.
- KOMAROV E.V. (2002): Zhestkokrylye nasekomye (Insecta, Coleoptera) Prielton'ya i okrestnostey osera Baskunchak: obzor fauny i annotirovannye spiski ryada semeystv, pp. 147-177. — In: KOMAROV E.V. (Ed.), Bioraznoobrazie nasekomykh yugo-vostoka Evropeyskoy chasti Rossii. Sbornik statey. Volgograd: 1-196.
- KRYZHANOVSKIY O.L., BELOUSOV I.A., KABAK I.I., KATAEV B.M., MAKAROV K.V. & V.G. SHILENKOV (1995): A checklist of the ground-beetles of Russia and adjacent lands (Insecta, Coleoptera, Carabidae). — Pensoft Publishers: Sofia-Moscow: 1-272.

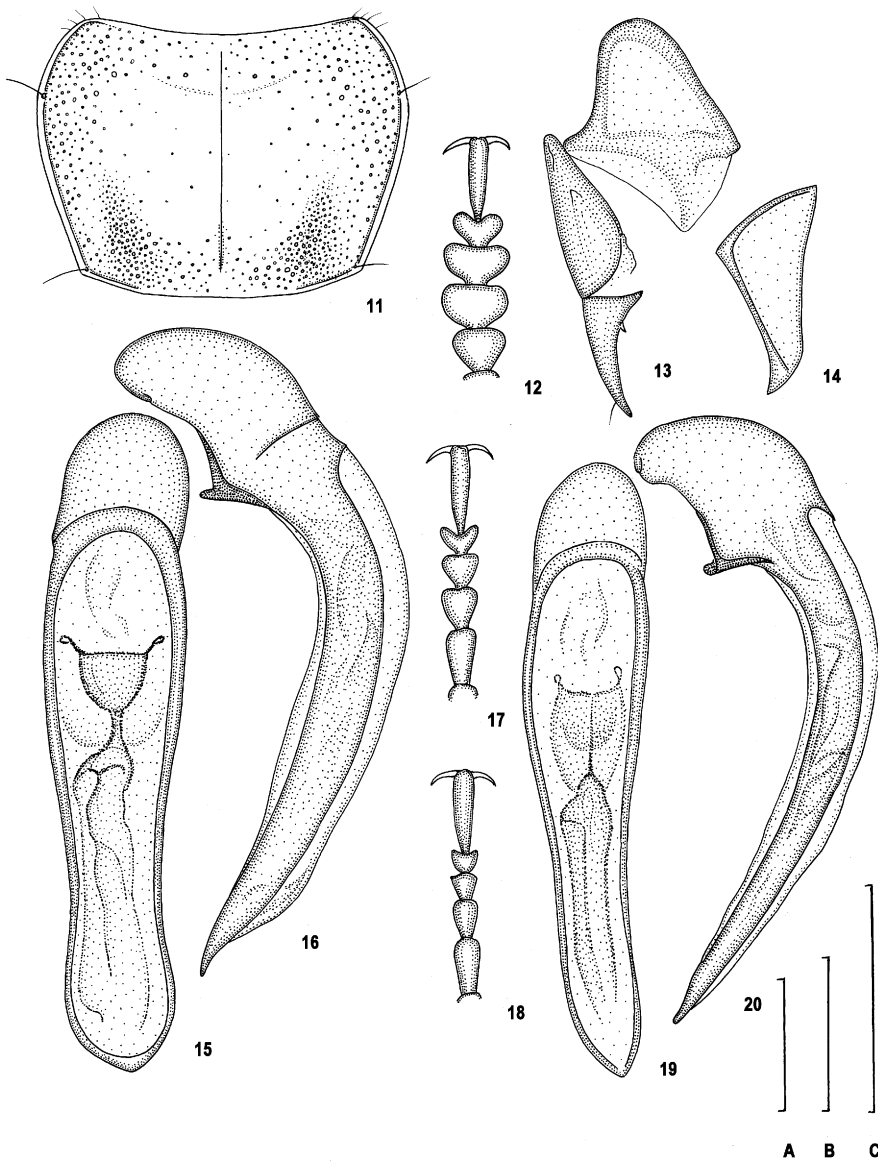
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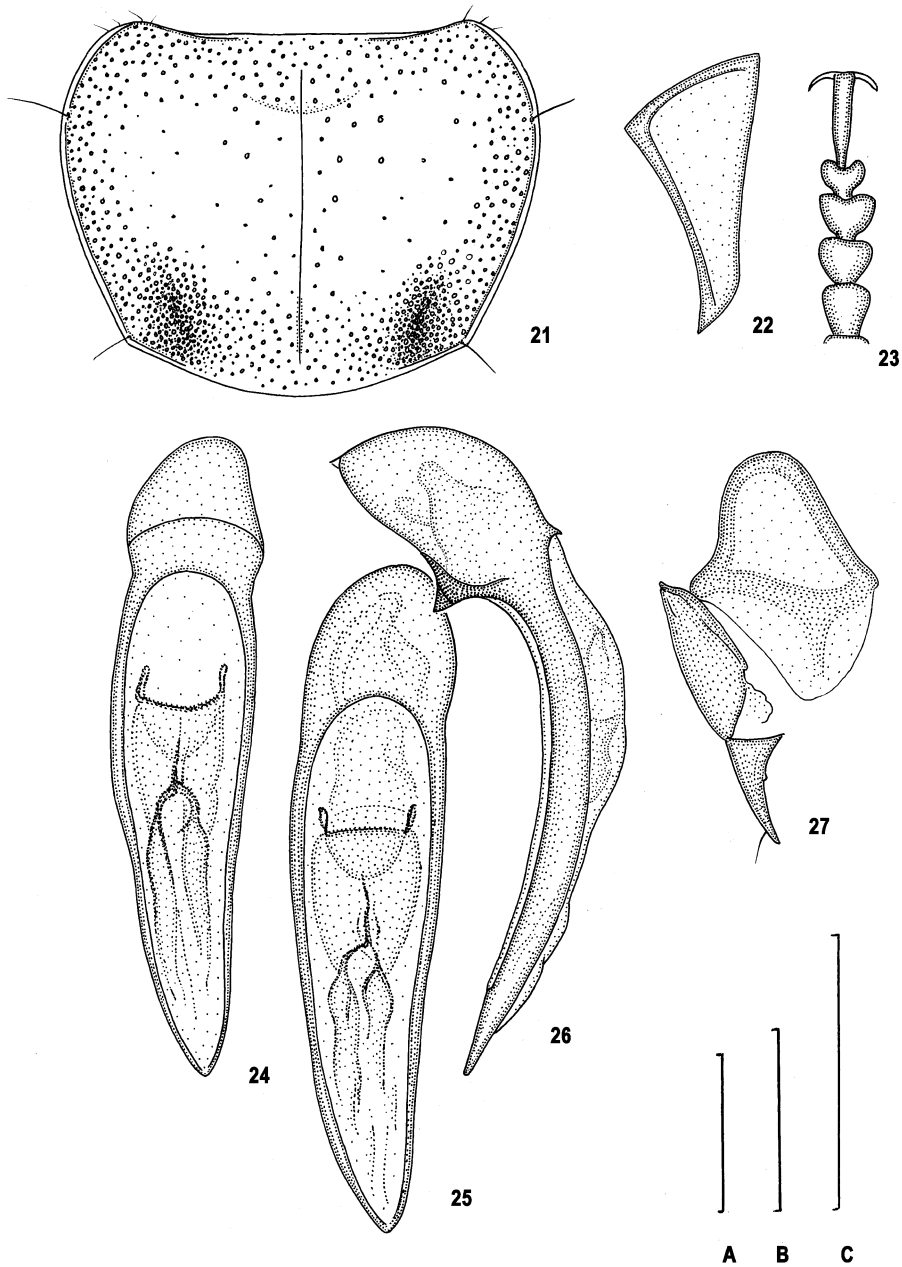
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Figs 1-6: *Dicheirotichus (Trichocellus) himalayanus* spec. nova. (1) Pronotum. (2) Left metepisternum. (3) Hemisternite and stylus. (4-5) Median lobe of aedeagus (holotype), (4) dorsal view, (5) lateral view. (6) Male protarsus. **Figs 7-10:** *D. (T.) stenothorax* (KABAK & KATAEV). (7) Left metepisternum (Volgograd Prov.). (8) Male protarsus. (9-10) Median lobe of aedeagus (Elton), (9) dorsal view, (10) lateral view. Scales = 0.5 mm (A: Fig 1; B: Figs 2, 6-8; C: Figs 3-5, 9-10).



Figs 11-18: *Dicheirotichus (Trichocellus) latimanus* spec. nova. (11) Pronotum. (12) Male pro-tarsus. (13) Hemisternite and stylus. (14) Left metepisternum. (15-16) Median lobe of aedeagus (holotype), (15) dorsal view, (16) lateral view. (17) Male mesotarsus. (18) Female mesotarsus. **Figs 19-20:** *D. (T.) angularis* (REITTER) (Amur Prov.). Median lobe of aedeagus, (19) dorsal view, (20) lateral view. Scales = 0.5 mm (A: Fig. 11; B: Figs 12, 14, 17, 18; C: Figs 13, 15-16, 19-20).



Figs 21-27: *Dicheirotichus (Trichocellus) subangularis* spec. nova. (21) Pronotum. (22) Left metepisternum. (23) Male protarsus. (24-26) Median lobe of aedeagus (holotype), (24, 25) dorsal view and (26) lateral view. (27) Hemisternite and stylus. Scales = 0.5 mm (A: Fig. 21; B: Figs 22-23; C: Figs 24-27).

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