

Three new species of the genus *Chydaeus* (Coleoptera: Carabidae) from Vietnam

Три новых вида рода *Chydaeus* (Coleoptera: Carabidae) из Вьетнама

B.M. KATAEV* & D.N. FEDORENKO

Б.М. КАТАЕВ, Д.Н. ФЕДОРЕНКО

*B.M. Kataev, Zoological Institute, Russian Academy of Sciences, 1 Universitetskaya Emb., St Petersburg 199034, Russia. E-mail: harpal@zin.ru. *Corresponding author.*

D.N. Fedorenko, A.N. Severtsov Institute of Ecology and Evolution, Russian Academy of Sciences, 33 Leninsky prospect, Moscow 119071, Russia. E-mail: dmitri-fedorenko@yandex.ru

Three new species of the genus *Chydaeus* Chaudoir, 1854 are described from Vietnam: *C. abramovi* sp. nov. (Lao Cai Province), *C. majusculus* sp. nov. (Lam Dong and Khanh Hoa provinces) and *C. dalatensis* sp. nov. (Lam Dong Province). A key for identification of six species and subspecies of *Chydaeus* known from Vietnam is provided.

Описаны три новых вида рода *Chydaeus* Chaudoir, 1854 из Вьетнама: *C. abramovi* sp. nov. (провинция Лаокай), *C. majusculus* sp. nov. (провинции Ламдонг и Кханьхоа) и *C. dalatensis* sp. nov. (провинция Ламдонг). Составлена таблица для определения шести видов и подвидов *Chydaeus*, известных из Вьетнама.

Key words: ground beetles, taxonomy, Vietnam, Coleoptera, Carabidae, Harpalini, *Chydaeus*, new species

Ключевые слова: жужелицы, таксономия, Вьетнам, Coleoptera, Carabidae, Harpalini, *Chydaeus*, новые виды

INTRODUCTION

The predominantly Oriental genus *Chydaeus* Chaudoir, 1854 comprises more than 45 species, with almost half of them described during the last decade (Ito, 2002, 2003, 2006; Kataev et Schmidt, 2002, 2006; Baehr, 2004, 2007; Kataev et al., 2012); however, many species remain undescribed. The *Chydaeus* fauna of Vietnam is still poorly investigated. Three species, *C. salvazae* Schauberger, 1934, *C. andrewesi* Schauberger, 1932, and *C. bedeli* (Tschitschérine, 1897), have been recorded from North Vietnam, the latter two being represented there by separate subspecies: *C. andrewesi kumei* Ito, 1992 and *C. bedeli vietnamensis* Kataev et Schmidt, 2002; but no *Chydaeus* species have been recorded from South Vietnam. In

this paper, three new species are described, one from North Vietnam and two from South Vietnam, based on material collected by several expeditions of the Russia–Vietnam Tropical Center to Vietnam in 2002–2009. In Vietnam the members of *Chydaeus* are confined to mountain regions where they occur at altitudes of 1400–2100 m.

MATERIAL AND METHODS

The following abbreviations are used for the depositories of the specimens examined: collection of J. Schmidt, Marburg, Germany (CS); collection of D.W. Wrase, Berlin, Germany (CWR); Moscow Pedagogical University, Moscow, Russia (MPU); reference collection of D.N. Fedorenko at A.N. Severtsov Institute of Ecology and

Evolution, Russian Academy of Sciences, Moscow, Russia (SIEE); Zoological Institute, Russian Academy of Sciences, St Petersburg, Russia (ZIN).

Measurements were taken as follows: body length, measured from the anterior margin of the clypeus to the elytral apex; width of head, measured as the maximum linear distance across the head including the compound eyes (HWmax), and as the minimum linear distance across the neck constriction just behind the eyes (HWmin); length of pronotum (PL), measured along its median line; length of elytra (EL), measured from the basal border at scutellum to the apex of the sutural angle; maximum width of pronotum (PWmax) and of elytra (EW), both measured at their broadest point; minimum width of pronotum (PWmin), measured at its narrowest point near the hind angles; length and width of metepisterna, measured along their inner and anterior margins, respectively.

TAXONOMY

Order **COLEOPTERA**

Family **CARABIDAE**

Tribe **HARPALINI**

Genus *Chydaeus* Chaudoir, 1854

Chydaeus abramovi sp. nov.

(Figs 1, 4–9)

Holotype. Male; **Vietnam**, “*Lao Cai Prov.*, 6 km W of Sa Pa, N slope of Phansipan Mt. Area, 2000–2100 m, near Tram Don (base of Hoang Lien Nat. Park), 22°21′N, 103°46′E, V.2005, A.V. Abramov leg. (‘Exp. of Russia-Vietnam Tropical Centre’)” (ZIN).

Paratypes. 1 male, 1 female; **Vietnam**, *Lao Cai Prov.*, environs of Sa Pa, ca 1600 m, May 2006, A.E. Anichkin leg. (SIEE).

Description. Size. Body length 12.3–12.9 mm; body width 5.1–5.6 mm (in holotype, 12.5 and 5.3 mm, respectively).

Color. Black, slightly shiny on dorsum. Apical half of apical palpomeres, antennomeres 4–11 and tarsi (occasionally also femora and tibiae) slightly paler, blackish brown.

Microsculpture. Present in both sexes on head, pronotum and elytra, consisting largely of fine, more or less isodiametric meshes; meshes in central portion of pronotum and on inner intervals of elytra slightly transverse.

Head. Comparatively large (HWmax/PWmax = 0.73–0.74 and HWmin/PWmax = 0.60–0.62), impunctate. Tempora rather short, nearly flat or slightly convex, sloped to neck. Clypeus arcuately emarginate and vaguely bordered apically. Clypeo-frontal suture slightly impressed. Frontal foveae small, moderately deep; clypeo-ocular prolongations short, not reaching supraorbital suture, deepened at clypeus. Supraorbital seta situated just before level of hind margin of each eye. Eyes large, rather convex (HWmax/HWmin = 1.18–1.23). Labrum distinctly emarginate apically. Left mandible subtruncate at apex. Ligular sclerite slightly widened and truncate at apex. Antennae slender, surpassing pronotal basal margin by approximately one apical antennomere; middle antennomeres (5–7) each about 2.0–2.3 times as long as wide.

Pronotum. Rather transverse (PWmax/PL = 1.49–1.54), narrowed basad (PWmax/PWmin = 1.17–1.21) and widest at about a third from apex. Sides rounded in apical two-thirds and broadly sinuate in basal third, with one setigerous pore slightly before middle. Apical margin shallowly emarginate, bordered only laterally. Basal margin more or less straight medially, slightly oblique laterally, distinctly bordered throughout, slightly longer than apical margin and noticeably shorter than elytral base between humeral angles. Apical angles clearly protruded anteriorly, narrowly rounded at apices. Basal angles almost right, only slightly greater than 90°, rather sharp, without denticle at apices. Pronotal disc convex, depressed laterobasally, markedly sloped to apical angles. Lateral depressions developed from apical angles to basal margin, narrow in apical third and evenly widened (more strongly in holotype than in paratypes) behind lateral seta. Basal foveae



Figs 1–3. *Chydaeus*, habitus, holotype: 1, *C. abramovi* sp. nov.; 2, *C. majusculus* sp. nov.; 3, *C. dalatensis* sp. nov.

narrow, reaching pronotal base, sharply delimited within somewhat deep laterobasal depressions; areas between basal foveae and between basal foveae and lateral depressions slightly convex. Pronotal surface very finely, densely and irregularly punctate only within lateral and laterobasal depressions.

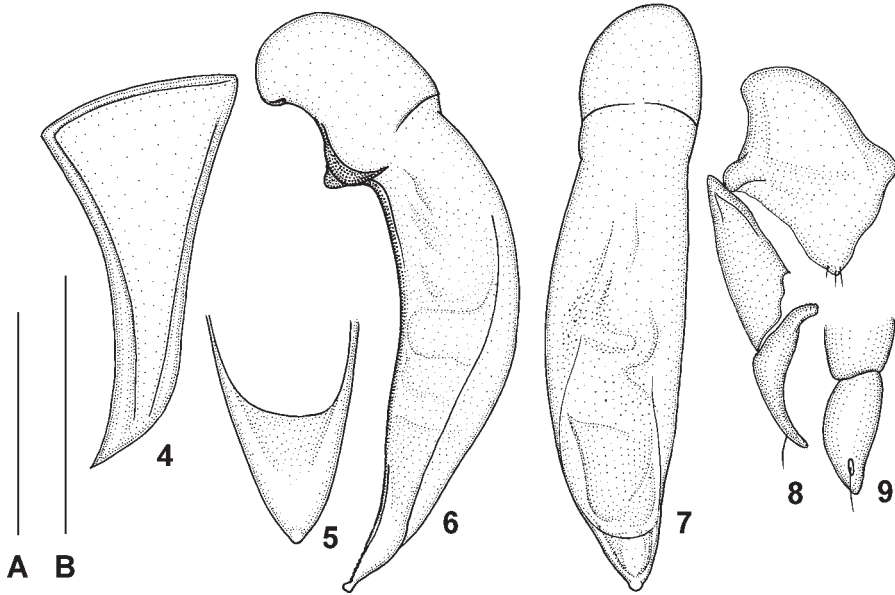
Elytra. Moderately wide (EL/EW = 1.45–1.50, EL/PL = 2.74–2.83, EW/PWmax = 1.24–1.27), widest behind middle, slightly diverging at sides medially, not fused along suture. Humeri subangulate, rounded at apices, each with a tiny denticle visible only from behind. Subapical sinuations shallow. Sutural angles markedly less than 90°, in both sexes very narrowly rounded at apices. Basal borders slightly sinuate, joined with lateral edge at very obtuse, almost indistinct angle. Striae impunctate, impressed along entire length. Parascutellar striole long, approximately as long as total width of intervals 1–3 or 1–5 basally, with basal setigerous pore. Intervals

slightly convex, evenly narrowed to apices, impunctate. Umbilicate setal series without distinct gap at middle.

Hind wings fully developed.

Ventral surface of body. Prosternum smooth and glabrous. Proepisterna (propleura) smooth, at most vaguely micropunctate. Prosternal process slightly prominent, not produced posteriad. Metepisterna narrow, about 1.7 times as long as wide, strongly narrowed posteriad (Fig. 4). Sternite VII (last visible) in both sexes with two pairs of setae along apical margin, with apex slightly concave in male and rounded in female. Tergite VII (last visible) of female angularly rounded at apex.

Legs. Metacoxa without posteromedial setigerous pore or any additional setigerous or nonsetigerous foveae medially. Metafemur with two setae along posterior margin. Protibia with one ventroapical spine, outer margin with two stouter spines and also two slenderer spines apically in male,



Figs 4–9. *Chydaeus abramovi* sp. nov.: 4, left metepisternum; 5, apex of median lobe (holotype); 6, 7, median lobe (holotype); 8, laterotergite IX and stylus; 9, stylus. Dorsal view (5, 7), lateral view (6, 9), ventral view (4, 8). Scale bars: A = 1.0 mm (4, 6–9); B = 0.5 mm (5).

and with four uniform, stout spines in female. Tarsi glabrous dorsally, tarsomere 5 with four (occasionally three) pairs of lateroventral setae. Metatarsus approximately equal in length to HWmin in male, slightly shorter in female; tarsomere 1 noticeably longer than tarsomere 2, but shorter than tarsomeres 2+3. In male, protarsus markedly enlarged (tarsomeres 2–4 much wider than long, slightly narrower than protibia at apex; tarsomere 1 about as long as wide), and tarsomeres 1–4 with adhesive vestiture ventrally; mesotarsus moderately enlarged (tarsomere 1 slightly longer than wide; tarsomere 2 approximately as long as wide; tarsomere 3 noticeably wider than long; and tarsomere 4 distinctly smaller than tarsomere 2 and 3, deeply concave apically), and tarsomeres 2–4 with adhesive vestiture ventrally).

Female genitalia (Figs 8, 9). Apical stylocome clearly arcuate in ventral view and moderately wide in lateral view.

Aedeagus (Figs 6, 7). Median lobe slender, arcuate in lateral view and nearly straight in dorsal view, convex on ventral side in apical half before terminal lamella. Basal bulb relatively small. Terminal lamella (Fig. 5) directed ventrad, somewhat flat, triangular in dorsal view, slightly longer than wide, blunted at apex and with triangular depression on dorsal side basally; apical capitulum very small, slightly prominent ventrad and dorsad. Apical orifice in dorsal position, prolonged to basal bulb. Internal sac without any distinct sclerotized elements (only patch of tiny spines apically present).

Comparison. Based on the metacoxa without an additional posteromedial setigerous pore and the aedeagus with a flat, triangular terminal lamella, this new species belongs to the *semenowi* group (sensu Kataev & Schmidt, 2006). Within this group, adults of *C. abramovi* sp. nov. are recognized by the following characters: large body size, wide pronotum with rather deep laterobasal

depressions and sinuate sides, and very long metepisterna. This new species is similar in the penis structure to *C. obtusicollis* Schaubberger, 1932 but distinguished from it by a shorter terminal lamella and the internal sac lacking distinct spiny patches.

Etymology. This new species is named after our friend and colleague, theriologist A.V. Abramov (St Petersburg), who collected the holotype.

Distribution. Known only from Sa Pa environments, Lao Cai Province, North Vietnam, where it was collected at altitudes of 1600–2100 m.

***Chydaeus majusculus* sp. nov.**

(Figs 2, 10–15)

Holotype. Male; **Vietnam**, “Lam Dong Prov., Bi Doup-Nui Nat. Res., Bi Doup Mt., N slope, 12°07'N, 108°39'44"E, 1700–1900 m, 6.V. 2009, leg. D. Fedorenko” (ZIN).

Paratypes. **Vietnam:** 2 males, *Lam Dong Prov.*, 5 km E of Dinh K'No, 46 km W of Da Lat, 12°48'N, 108°23'E, 1500–1520 m, at light, 19–21 Apr. 2010, A.M. Prokofiev leg. (MPU, SIEE); 1 female, *Khanh Hoa Prov.*, Hon Ba Mt., ca 30 km W of Nha Thang, 1500 m, 12°07'N, 108°57'E, 15–23 Apr. 2006, A.V. Abramov leg. (“Exp. of Russia–Vietnam Tropical Centre”) (ZIN).

Description. Size. Body length 10.5–13.0 mm; body width 4.8–5.7 mm (in holotype, 13.0 and 5.7 mm, respectively).

Color. Black, shiny on dorsum. Palpi, antennae and tarsi paler, brown, with antennomeres 1–6 partly slightly infusate.

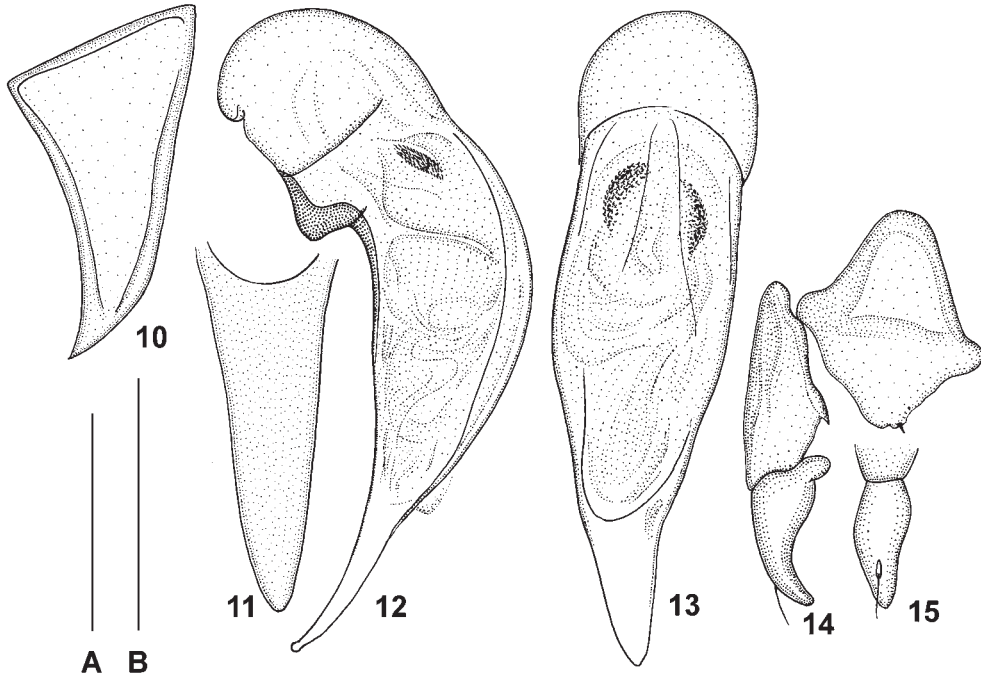
Microsculpture. Meshes on dorsum in both sexes present throughout, more or less isodiametric on head, weakly transverse on pronotum and clearly transverse on elytra.

Head. Rather large, with wide neck ($HW_{max}/PW_{max} = 0.74–0.76$ and $HW_{min}/PW_{max} = 0.65–0.67$), impunctate (occasionally with few indistinct micropunctures on frons). Tempora fairly long and rather gently sloped to neck. Clypeo-frontal suture deepened. Frontal foveae small, not deep; clypeo-ocular prolongations shallow, reaching supraorbital suture. Supraorbital seta situated at level of hind

margin of each eye. Eyes small and weakly convex ($HW_{max}/HW_{min} = 1.13–1.16$). Labrum deeply emarginate at apex. Left mandible stout and clearly truncate at apex. Antennae short, reaching basal third of pronotum; middle antennomeres (5–7) each about twice as long as wide.

Pronotum. Clearly transverse ($PW_{max}/PL = 1.47–1.60$), widest at about a third from apex and noticeably narrowed basad ($PW_{max}/PW_{min} = 1.23–1.31$). Sides rounded in apical two-thirds and broadly sinuate in basal third, with one setigerous pore slightly before middle (in holotype with additional lateral seta before obligatory one on right side). Apical margin shallowly emarginate, bordered only laterally. Basal margin more or less straight medially, slightly oblique laterally, distinctly bordered throughout, almost equal in length to apical one and shorter than elytral base between humeral angles. Apical angles small and acute; basal angles obtuse, without denticle at apices. Pronotal disc convex, depressed laterobasally, markedly sloped to apical angles. Lateral depressions discernible from apical angles to basal margin, narrow in apical third (as wide as width of antennomere 2) and evenly widened behind lateral seta. Basal foveae oval, reaching pronotal base, rather sharply delimited within moderately deep laterobasal depressions; areas between basal foveae and between basal foveae and lateral depressions slightly convex. Pronotal surface distinctly and irregularly punctate basally and in lateral depressions; finer punctation also present along anterior margin and along sides beyond lateral depressions.

Elytra. Widest behind middle ($EL/EW = 1.35–1.41$, $EL/PL = 2.74–2.91$, $EW/PW_{max} = 1.28–1.33$), not fused along suture, rounded at sides. Humeri subangulate, rounded at apices, each occasionally with a tiny denticle visible only from behind. Subapical sinuations distinct but shallow. Sutural angles sharp, not rounded at apices. Basal borders slightly sinuate, joined with lateral edge at very obtuse angle. Striae impunc-



Figs 10–15. *Chydaeus majusculus* sp. nov.: 10, left metepisternum; 11, apex of median lobe (holotype); 12, 13, median lobe (holotype); 14, laterotergite IX and stylus; 15, stylus. Dorsal view (11, 13), lateral view (12, 15), ventral view (10, 14). Scale bars: A = 1.0 mm (10, 12–15); B = 0.5 mm (11).

tate, impressed along entire length. Parascutellar striole present, approximately as long as total width of intervals 1–2 basally, with basal setigerous pore. Intervals slightly convex, faintly narrowed to apices and weakly convex apically; two lateral intervals with fine micropunctuation. Umbilicate setal series without distinct gap at middle.

Hind wings fully developed in female and reduced to small scales in males.

Ventral surface of body. Prosternum smooth and glabrous. Proepisterna (propleura) smooth, at most with few scattered micropunctures. Prosternal process not prominent. Metepisterna about 1.4 times as long as wide, strongly narrowed posteriorly (Fig. 10). Sternite VII (last visible) in both sexes with two pairs of setae along apical margin, with apex slightly concave in male and rounded in female. Tergite VII

(last visible) of female angularly rounded at apex.

Legs. As described for preceding species, but tarsomere 5 with three or four pairs of lateroventral setae. Metatarsus in both sexes shorter than HWmin. In male, pro- and mesotarsi markedly enlarged: protarsomeres 2–4 wider than long, slightly narrower than protibia at apex; mesotarsomere 2 slightly longer than wide and mesotarsomere 3 approximately as long as wide; protarsomeres 1–4 and mesotarsomeres 2–4 with adhesive vestiture ventrally.

Female genitalia (Figs 14, 15). Apical stylomere comparatively faintly curved.

Aedeagus (Figs 12, 13). Median lobe stout, rather strongly arcuate in lateral view and almost straight in dorsal view, weakly convex or almost flat on ventral side medially. Terminal lamella (Fig. 11) clearly

curved ventrad (more noticeably so in apical quarter), flat, triangular, about three times as long as wide, narrowly rounded at apex and with very small bud-like apical capitulum. Apical orifice slightly shifted to right, prolonged to basal bulb. Internal sac with two basal spiny patches.

Comparison. *Chydaeus majusculus* sp. nov. belongs to the *obscurus* group (sensu Kataev & Schmidt, 2006), which is characterized by the metacoxa without additional posteromedial setigerous pore and the aedeagus with a long terminal lamella. This new species is most similar to *C. gestroi* Andrewes, 1928 from Sumatra in external characters and structure of the aedeagus, differing distinctly in the pronotum which is densely and rather coarsely punctate basally, and more finely so laterally and apically. The pronotum of *C. gestroi* is almost impunctate even basally, at most only with few very fine, indistinct punctures in basal foveae and near lateral margins. In addition, *C. gestroi* is distinguished from the new species by having the following features: pronotum on average narrower and more strongly narrowed basad; two lateral intervals of elytra smooth, without micropunctuation; elytral basal border joined with lateral edge more or less arcuately, not forming a distinct angle; tarsomeres slenderer; pro- and mesotarsi in male less strongly widened; median lobe of aedeagus (see Kataev & Schmidt, 2006: figs 114–116) less arcuate, with comparatively smaller basal bulb and with terminal lamella shorter and less flat, not bent ventrad in apical quarter.

In appearance, *C. majusculus* sp. nov. is also similar to *C. abramovi* sp. nov., but clearly differs from the latter in the following distinctive characters: head larger, eyes smaller and less convex, mandibles stouter at apices, antennae shorter, not extended to pronotal basal margin, elytral microsculpture finer and clearly transverse, pronotal punctation more distinct and more widely distributed, metepisterna shorter, two lateral elytral intervals micropunctate, and median lobe of aedeagus with much longer

terminal lamella and with two spiny patches in internal sac.

Etymology. The species name is an adjective meaning “somewhat greater” and referring to a rather large body size of the new species.

Distribution. Known from Khanh Hoa and Lam Dong provinces, South Vietnam, at altitudes of 1500–1900 m.

Bionomics. Holotype has been caught by hand in leaf-litter of the smallest meadow patch skirting tropical rain forest at a stony brink, at the altitude of about 1900 m.

Chydaeus dalatensis sp. nov.

(Figs 3, 16–22, 25)

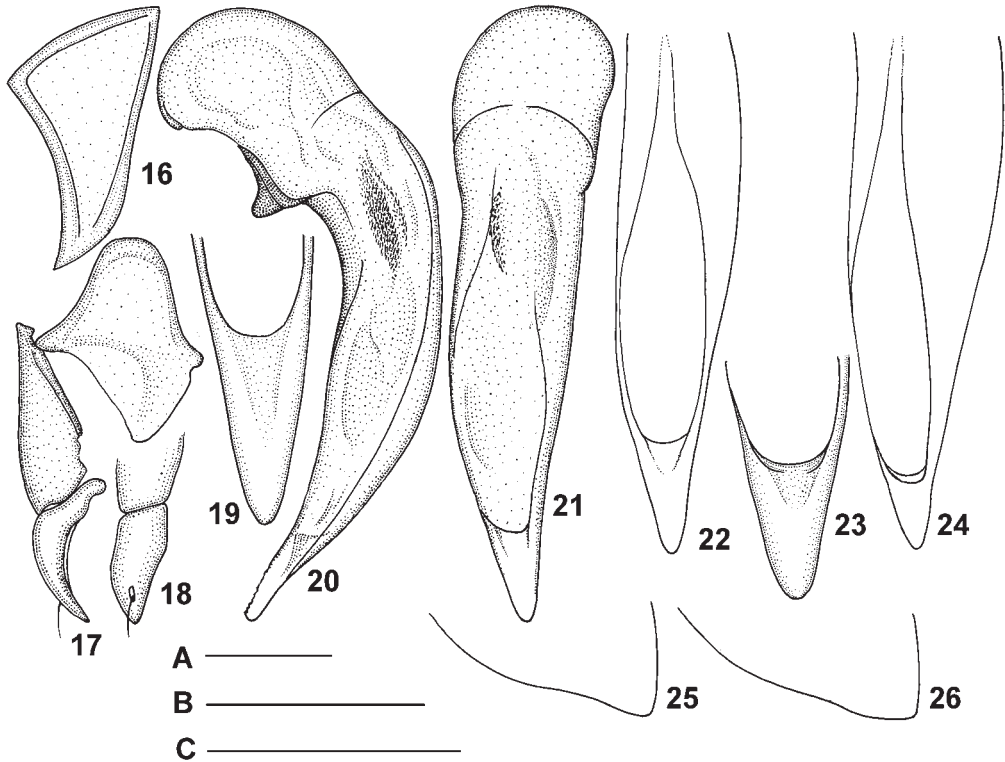
Holotype. Male; Vietnam, “Lam Dong Prov., Bi Doup-Nui Ba Reserve, env. Long Lanh, 12°10′44″N, 108°40′44″E, 1400–1600 m, 3–6. IV.2008, leg. D. Fedorenko” (ZIN).

Paratypes. Vietnam, Lam Dong Prov.: 2 females, same data as for holotype (ZIN); 11 males, 12 females, same data, but various dates between 11 Apr. and 29 May 2008 (ZIN, SIEE, CS, CWR); 1 male, Da Lat (= Lang Biang) Plateau, Bi Doup Mt., Da Nhiw Valley, 4 km N Lang Lonh, 9 Apr. 2002, S.V. Kruskop leg. (MPU); 2 females, 5 km E of Dinh K’No, 46 km W of Da Lat, 12°48′N, 108°23′E, 1500–1520 m, at light, 19–21 Apr. 2010, A.M. Prokofiev leg. (MPU, SIEE).

Description. Size. Body length 9.9–11.0 mm; body width 4.3–5.1 mm (in holotype, 10.2 and 4.4 mm, respectively).

Color. Body black, shiny on dorsum; clypeus apically and mandibles basally in some specimens slightly paler, dark reddish brown; palpi reddish brown; antennomere 1, tibiae and femora black, antennomeres 2–11 and tarsi blackish brown to reddish brown, in most specimens antennomeres 2–6 darker than antennomeres 7–11.

Microsculpture. Present throughout on dorsum. Head covered with fine isodiametric meshes. Pronotum with fine microsculpture consisting of more or less isodiametric meshes along base and sides and of weakly transverse meshes in central portion and at apical margin; in male meshes more or less effaced in central portion of pronotal disc. Elytral microsculpture in male consisting



Figs 16–26. *Chydaeus*: 16–22, 25, *C. dalatensis* sp. nov. (holotype and female paratype); 23, 24, 26, *C. salvazae*. Left metepisternum (16); laterotergite IX and stylus (17); stylus (18); apex of median lobe (19, 23); median lobe (20–22, 24); apex of left elytron (25, 26). Dorsal view (19, 21–26), lateral view (18, 20), ventral view (16, 17). Scale bars: A = 1.0 mm (25, 26); B = 1.0 mm (16–18, 20–22, 24); C = 0.5 mm (19, 23).

of fine, more or less isodiametric meshes on two or three lateral intervals apically and basally and in narrow area along basal border, and of more or less effaced, weakly transverse meshes on remaining surface; in female consisting of fine weakly transverse meshes on interval 1 throughout and on intervals 2–7 in apical half of each elytron, and of distinct isodiametric, nearly granulate meshes on remaining surface.

Head. Comparatively large (HWmax/PWmax = 0.73–0.77 and HWmin/PWmax = 0.61–0.65), impunctate. Tempora moderately long, nearly flat, evenly sloped

to neck. Clypeus very shallowly emarginate and vaguely bordered apically. Clypeo-frontal suture distinct, slightly deepened. Frontal foveae small, moderately deep; clypeo-ocular prolongations superficial and short. Supraorbital seta situated at level of hind margin of each eye. Eyes of medium size, rather convex (HWmax/HWmin = 1.15–1.24). Labrum distinctly emarginate apically. Left mandible clearly truncate at apex. Ligular sclerite truncate at apex, with apical angles protruding laterally. Antennae slender, in male surpassing pronotal basal margin by half of apical antennomere, in fe-

male at most reaching pronotal base; middle antennomeres (5–7) each about 1.5–1.9 times as long as wide.

Pronotum. Transverse ($PW_{max}/PL = 1.46–1.61$), noticeably narrowed basad ($PW_{max}/PW_{min} = 1.23–1.29$) and widest at about a third from apex. Sides rounded along entire length, but in basal half less distinctly than in apical half; with one lateral setigerous pore on each side slightly before middle. Apical margin very slightly concave or nearly straight medially, bordered only laterally. Basal margin nearly straight or very broadly rounded medially, oblique laterally, bordered throughout, approximately equal in length to apical margin and noticeably shorter than elytral base between humeral angles. Apical angles acute, narrowly rounded at apices, slightly protruded anteriorly. Basal angles distinct, obtuse, occasionally each with very small obliterate denticle at apex. Pronotal disc moderately convex, depressed laterobasally, markedly sloped to apical angles. Lateral depressions somewhat deep, narrow apically (approximately as wide as width of antennomere 2), slightly widened to lateral seta and more strongly so behind it, fused basally with wide and deep laterobasal depressions. Basal foveae elongate, shallow, reaching pronotal base, area between them convex; area at basal angles flat or very weakly convex. Pronotal surface densely and distinctly punctate within lateral and laterobasal depressions; in many specimens finer punctation also present along apical margin and in some specimens also on disc.

Elytra. Moderately wide ($EL/EW = 1.36–1.44$, $EL/PL = 2.60–2.91$, $EW/PW_{max} = 1.26–1.33$), widest behind middle, rounded at sides, not fused along suture. Humeri subangulate, rounded at apices, each with a tiny, occasionally indistinct, denticle visible only from behind. Subapical sinuations moderately deep (Fig. 25). Sutural angles acute, blunted at apices in both sexes. Basal borders slightly sinuate, joined with lateral edge at obtuse angle. Striae impunctate, clearly impressed along entire

length. Parascutellar striole present, short, about as long as total width of intervals 1 and 2 basally; basal setigerous pore present. Intervals slightly convex. Umbilicate setal series not interrupted or narrowly interrupted at middle.

Hind wings reduced to small scales.

Ventral surface of body. Prosternum covered with very fine short setae. Prosternal process not prominent. Proepisterna (propleura) impunctate. Metepisterna (Fig. 16) narrow, markedly narrowed posteriorly, about 1.2 times as long as wide. Sternite VII (last visible) in both sexes with two pairs of setae along apical margin and rounded at apex. Tergite VII (last visible) of female angularly rounded at apex.

Legs. As described for preceding species, but tarsomere 5 with three or four pairs of lateroventral setae. Metatarsus longer than HW_{min} but shorter than HW_{max} in male, slightly shorter than HW_{min} in female; tarsomere 1 distinctly longer than tarsomere 2 but distinctly shorter than tarsomeres 2+3. In male, protarsus strongly enlarged (tarsomeres 2–4 much wider than long, approximately as wide as or wider than protibia at apex; tarsomere 1 about as long as wide), and tarsomeres 1–4 with adhesive vestiture ventrally; mesotarsomeres 2–4 moderately enlarged (tarsomere 2 slightly longer than wide, tarsomere 3 slightly wider than long, tarsomere 4 distinctly smaller than tarsomeres 2 and 3 and deeply concave apically), and tarsomeres 2–4 with adhesive vestiture ventrally.

Female genitalia (Figs 17, 18). Apical stylomere evenly curved.

Aedeagus (Figs 20–22). Median lobe arcuate in lateral view, convex at middle ventrally, nearly straight in dorsal view (with apex slightly directed to right), without apical capitulum. Terminal lamella (Fig. 19) triangular in dorsal view, about twice as long as wide; apex very narrowly rounded, nearly circular in cross-section; ventral side serrate and with narrow longitudinal depression, dorsal side with wide basal depression. Apical orifice in almost dorsal po-

sition, only slightly shifted to left basally. Internal sac with two basal spiny patches.

Comparison. This new species is very similar in external morphology and structure of the aedeagus to *C. salvazae* Schaubberger, 1934 but easily distinguished from it by having the apical orifice of the median lobe in an almost dorsal position (only slightly shifted to the left basally) and the terminal lamella longer and thinner (Figs 22 and 24). Additionally, the median lobe of *C. dalatensis* **sp. nov.** is slenderer and has a relatively smaller basal bulb. The differences in characters of external morphology between the two species are rather insufficient: microsculpture on head and pronotum is slightly more distinct and elytral subapical sinuation is usually deeper in *C. dalatensis* **sp. nov.** than in *C. salvazae* (Figs 25 and 26). Kataev & Schmidt (2006) treated *C. salvazae* as belonging to the separate, monobasic *salvazae* group based on the peculiar features of aedeagus of this species: apical orifice shifted to the left; apex thick, nearly circular in cross-section and lacking capitulum. Since *C. dalatensis* **sp. nov.** is apparently closely related to *C. salvazae*, we include it in the same group in spite of the fact that apical orifice of its aedeagus is in quite different position. Thus, the shape of the terminal lamella remains the only character distinguishing the *salvazae* and *semenowi* groups. This supports the idea (Kataev & Schmidt, 2006) that *Chydaeus* is a rather monomorphic taxon demonstrating narrow or even indistinct gaps between groups of more or less related species recognizable within this genus.

Etymology. The species name refers to the Da Lat Plateau in South Vietnam, where the type series was collected.

Distribution. This new species is known only from the Da Lat (= Lang Biang) Plateau, Lam Dong Province, South Vietnam, at altitudes of 1400–1600 m. It seems to be a southern vicariant of *C. salvazae*. The latter is distributed over North Vietnam, South West China (Sichuan and Yunnan) and is also found in the Central Himala-

yas: Sikkim and Nepal (Kataev & Schmidt, 2002; Kataev et al., 2012).

Bionomics. All the specimens of the type series have been collected in a flood-land maize field at the altitude of about 1400 m. The adults seem to be rather frequent in agrocenoses.

Key to species and subspecies of *Chydaeus* known from Vietnam

1. Metacoxa with additional posteromedial pore. Apex of tergite VII in female protruding dentiformly posteriad
 *C. bedeli vietnamensis* Kataev et Schmidt
 – Metacoxa without additional posteromedial pore. Apex of tergite VII in female rounded 2
2. Metepisterna very long, about 1.7 times as long as wide (Fig. 4). Pronotal basal angles nearly right, only slightly greater than 90°. Median lobe of aedeagus (Figs 6–7) with wide, triangular terminal lamella; internal sac lacking any spiny patches
 *C. abramovi* **sp. nov.**
 – Metepisterna shorter, at most 1.4 times as long as wide (as in figs 10, 16). Pronotal basal angles clearly obtusangular. Median lobe of aedeagus with narrower terminal lamella; internal sac with one or two small spiny patches 3
3. Pronotal basal angles each with a small acute denticle protruded laterad. Pronotum along sides with narrow lateral groove almost not widened behind lateral seta. Terminal lamella of aedeagus very narrow and long, approximately 3.5 times as long as wide, with sides only slightly converging to apex; internal sac with one preapical spiny patch on right side
 *C. andreweesi kumei* Ito
 – Pronotal basal angles not denticulate at apices, at most each with a tiny obliterate denticle. Pronotum along sides with narrow lateral depression widened posteriad. Terminal lamella of aedeagus shorter, triangular; internal sac with two basal spiny patches 4
4. Antennae shorter, not extended to pronotal basal margin. Two or three lateral elytral intervals minutely punctate. Microsculpture on elytral disc in female consisting of fine transverse meshes. Protarsomeres 2 and 3 in male narrower than protibia at apex. Terminal lamella of aedeagus (Figs 12, 13) long, approximately three times as long as wide, and

- somewhat flat at apex (Fig. 11); apical orifice slightly shifted to right
 ***C. majusculus* sp. nov.**
- Antennae longer, extended to pronotal basal margin. Elytral lateral intervals smooth. Microsculpture on elytral intervals 2–7 basally in female consisting of distinct isodiametric, nearly granulate meshes. Protarsomeres 2 and 3 in male approximately as wide as or wider than protibia at apex. Terminal lamella of aedeagus (Fig. 19) shorter, about twice as long as wide, nearly circular in cross-section at apex; apical orifice shifted to left or in dorsal position 5
 - 5. Median lobe of aedeagus (Fig. 24) stouter, with apical orifice clearly shifted to left; terminal lamella (Fig. 23) shorter and thicker, basal bulb relatively larger. Elytral subapical situation usually shallower (Fig. 26)
 ***C. salvazae* Schaubberger**
 - Median lobe of aedeagus (Fig. 22) slenderer, with apical orifice in almost dorsal position, terminal lamella (Fig. 19) longer and thinner, basal bulb relatively smaller. Elytral subapical situation usually deeper
 ***C. dalatensis* sp. nov.**

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