Koleopterologische Rundschau	84	13–29	Wien, September 2014

Three new *Anchomenus* BONELLI, 1810 from the West Palaearctic (Coleoptera: Carabidae: Platynini)

J. SCHMIDT

Abstract

Two new species of Ground Beetles (Coleoptera: Carabidae: Platynini) are described: *Anchomenus bellus* sp.n. from southern and eastern Turkey, and *A. alcedo* sp.n. from northern Israel and Lebanon. In external characters they are very similar to the western Turkey endemic *A. dohrnii* FAIRMAIRE, 1866, but differ distinctly each in male genitalic characters. A third new species of *Anchomenus* BONELLI is described from eastern Afghanistan: *A. kataevi* sp.n. The relationships of the new species are briefly discussed, and a key to the Palaearctic representatives of the genus *Anchomenus* is provided. *Anchomenus dorsalis infuscatus* CHEVROLAT, 1854, formerly considered a junior synonym of *A. dorsalis* PONTOPPIDAN, 1763, is here regarded as a good subspecies.

Key words: Coleoptera, Carabidae, Platynini, *Anchomenus*, Afghanistan, Israel, Syria, Lebanon, Turkey, new species, key to species.

Introduction

Based on comprehensive morphological and phylogenetic analyses of adult and larval characters, monophyly of a clade comprising the Platynini taxa *Anchomenus* BONELLI, 1810, *Elliptoleus* BATES, 1882, *Sericoda* KIRBY, 1837, and *Tetraleucus* CASEY, 1920 clade ("the *Anchomenus* clade") was established by LIEBHERR (1991). In this and a subsequent paper of the same author (LIEBHERR 1994) the Holarctic genus *Anchomenus* was redefined, and all species known until then were redescribed, their distributional areas shown, and a hypothesis of relationships and of the distributional histories of each of the species and species groups presented. These works provide an excellent basis not only for species and species group identifications but also for further studies in Platynini systematics, phylogeny, and biogeography.

Within the mega-diverse tribe Platynini, members of the *Anchomenus* clade are easy to distinguish by the unusual form of the spermatheca of the female genital tract, which possesses a basal reservoir and a long apical filament which is considered a synapomorphic feature of that clade (LIEBHERR 1991). Within this clade the genus *Anchomenus* is less obviously definable as all of the characters which are considered autapomorphies of that genus are not complex (colour of body surface, microsculpture, chaetotaxy) and these characters are often similarly developed in terminal lineages of other genera. In addition, these character states were more or less markedly modified in the further course of the *Anchomenus* cladogenesis. From the current point of knowledge, the easiest way to identify members of the genus *Anchomenus* within the *Anchomenus* clade sensu LIEBHERR (1991) is based on the combination of the following two characters:

- Profemur with anteroventral setae (= synapomorphy of *Anchomenus*, however, anteroventral setae are also developed in some species of *Sericoda*).
- Parameres without setae (= symplesiomorphy); parameres with setae at tip are a synapomorphy of *Sericoda* + *Elliptoleus*, the sister group of *Anchomenus*.

Since the publication of the fundamental papers of LIEBHERR (1991, 1994), many specimens of Palaearctic *Anchomenus* were sent to me for identification. Within this material three species have been discovered which are new to science. In the present paper these species are described, and their relationships are briefly discussed. Finally, a revised key to the Palaearctic representatives of the genus *Anchomenus* is provided.

Materials and methods

This study is based on 57 specimens of the three newly described species, in addition to comprehensive comparative material from the Palaearctic comprising all *Anchomenus* species hitherto known from that region. The specimens are deposited in the following collections:

cASSM	coll. Thorsten Assmann, Bleckede, Germany
cGRYCZ	coll. Michal Grycz, České Budějovice, Czech Republic
cHAJ	coll. Evžen & Patrik Hajdaj, Ježov, Czech Republic
cHRR	coll. Ingmar Harry, Freiburg, Germany
cHTZ	coll. Andreas Hetzel, Darmstadt, Germany
cRTT	coll. Christoph Reuter, Hamburg, Germany
cSCHM	coll. Joachim Schmidt, Admannshagen, Germany
cWR	coll. David W. Wrase, Berlin, Germany
NME	Naturkundemuseum, Erfurt, Germany (Matthias Hartmann)
TAU	National Collections of Natural History, Tel Aviv University, Israel (Amnon Freidberg)
ZISP	Zoological Institute, St. Petersburg, Russia (Boris M. Kataev)

Specimens were examined with a stereomicroscope Leica M205-C. Photographs were taken with a Leica DFC450 digital camera using a motorised focussing drive, light base Leica TL5000 Ergo, diffused light with Leica hood LED5000 HDI, subsequently processed with Leica LAS application software, and enhanced with CorelDRAW Graphics Suite X5.

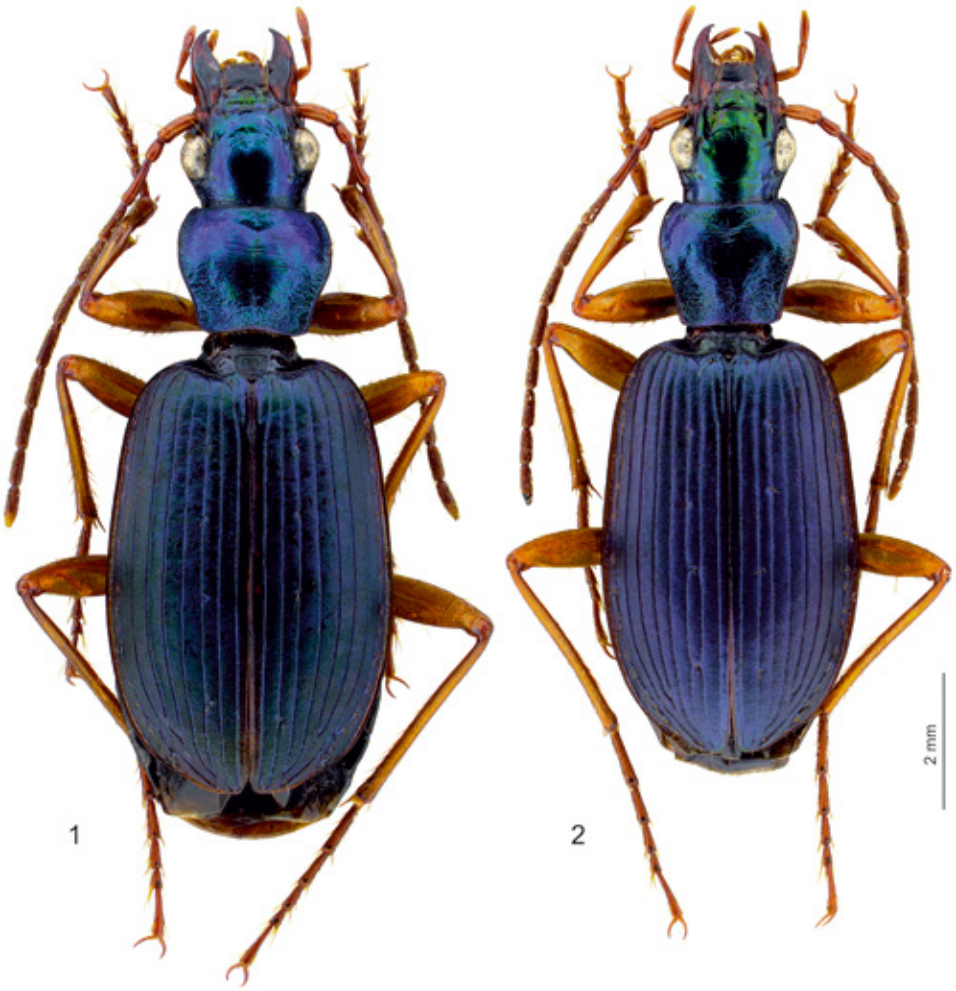
Body size was measured from the apex of the longer mandible in closed position to the apex of the longer elytron. The width of the head (HW) was measured across the widest portion including the compound eyes. The widths of the pronotum (PW) and of the elytra (EW) were measured at their widest points. The width of the pronotal apex (PWA) was measured between the tips of the apical angles, the width of the pronotal base (PWB) between the tips of the basal angles. The length of the pronotum (PL) was measured from the anterior to the posterior margin along the midline; the length of the elytra (EL) was measured from base of the scutellum to the apex of the longer elytron.

Genitalia were prepared after soaking specimens in water with vinegar and mild detergent for one day, followed by dissection. The aedeagus was cleared in lactic acid for up to five days. After examination, genitalic preparations were placed in Euparal on acetate labels or cards, which were pinned beneath the specimen.

Anchomenus dohrnii FAIRMAIRE, 1866

(Figs. 1–2, 7–10, 19–20)

Anchomenus Dohrnii FAIRMAIRE 1866: 250 (locus typicus: Boz Dağ, east of Izmir, western Turkey).
Anchomenus Dohrni [incorrect subsequent spelling]: GEMMINGER & HAROLD 1868: 370.
Platynus (*Anchodemus*) *Dohrni*: SAHLBERG 1913: 21.
Platynus (*Anchodemus*) *Dohrni* var. *Diana* SAHLBERG 1913: 21; synonymy see (LIEBHERR 1991: 37) (locus typicus: Selçuk, southern Izmir Province, western Turkey ("Ajasuluk in vicinate ruirarum Ephesi", SAHLBERG 1913)).
Platynus (*Anchodemus*) *Dohrni*: CSIKI 1931: 866, partim.
Platynus (*Anchodemus*) *Dohrni* ab. *Diana*: CSIKI 1931: 866.
Anchomenus dohrnii: LIEBHERR 1991: 37, partim.
Anchomenus (*Anchodemus*) *dohrni*: CASALE & VIGNA TAGLIANTI 1999: 375, partim.
Anchomenus (*Anchodemus*) *dohrnii*: BOUSQUET 2003: 455, partim.
Anchomenus (*Anchodemus*) *dohrnii*: LORENZ 2005: 413.



Figs. 1–2: Habitus of *Anchomenus dohrnii* ("10 km N Bozdagh"), 1) female, 2) male.

MATERIAL EXAMINED: Turkey: "TR. ö. [östlich = east of] Izmir 30.3. / 10 km n. [nördlich = north of] Bozdag / leg. D. Bernh. 86" 5 ♂♂, 3 ♀♀ (cSCHM); "TURQUIE / (Izmir) / C. JEANNE", "Aydin dağ / Somak, 1000 m / 10-5-1995" 2 ♀♀ (cSCHM); "TURKEY Izmir vil. / BOZ DAĞ Mts. 1200-1500 m / BOZDAĞ env., 29.V.-1.VI.2003 / I. SMATANA lgt." 1 ♂, 1 ♀ (cASSM); "Turkeyi [!] mer. / SALIHLI env. / Leg. J. Majer 6.5.2007" 1 ♂ (cGRYCZ).

REMARKS: Mention of *A. dohrnii* in the former catalogues and in the genus revision by LIEBHERR (1991) includes populations from western Turkey (Boz Dağ Mts. = locus typicus) as well as those from Syria and southern Turkey near the Syrian border, respectively. The latter could now be identified to be representatives of a distinct species (see description of *A. bellus* sp.n. below).

DIAGNOSIS: A redescription of *A. dohrnii* was already presented by LIEBHERR (1991). However, as this study includes also material from the Nur Dağları (= Amanus Mts.) in southern Turkey which belongs to *A. bellus* sp.n. (described below) hereinafter the differential characters

of *A. dohrnii* are specified: In both sexes, isodiametric micromeshes in middle of head and in middle of pronotum distinctly less deeply engraved than on sides, near base and near apex of head and pronotum, respectively, and thus, discs of head and pronotum more glossy (Figs. 7, 9–10). Eyes comparatively small, slightly shorter than third antennomere, temples comparatively long, approximately half as long as eyes (Fig. 7). Scape normal (Fig. 8). Pronotum, at an average, slender with sides more markedly constricted posteriorly than in the two following species, and with basal margin slightly smaller than apical margin (Figs. 9–10); proportions (n = 10): PW/HW 1.09–1.13 (Ø 1.11), PW/PL 1.17–1.24 (Ø 1.20), PW/PWB 1.29–1.39 (Ø 1.36), PWA/PWB 1.01–1.05 (Ø 1.02). Median lobe of aedeagus slender with internal sac comparatively weakly sclerotized; the latter (in quiescent condition) is folded in such a way that a small triangular folding structure is visible in the middle portion of the internal sac, when viewed from the right side (Figs. 19–20).

DISTRIBUTION: Boz Dağ, Aydin Dağları and adjacent areas (western Turkey).

Anchomenus bellus **sp.n.**
(Figs. 3–4, 11–14, 21–22)

Platynus (*Anchodemus*) *Dohrni*: CSIKI 1931: 866, partim.
Anchomenus dohrnii: LIEBHERR 1991: 37, partim.
Anchomenus (*Anchodemus*) *dohrni*: CASALE & VIGNA TAGLIANTI 1999: 375, partim.
Anchomenus (*Anchodemus*) *dohrnii*: BOUSQUET 2003: 455, partim.

REMARKS: Mention of *A. dohrnii* in the publications listed above includes, amongst others, populations from Syria and southern Turkey near the Syrian border, respectively. These populations are representatives of *A. bellus* sp.n.

TYPE MATERIAL: **Holotype** ♂: "TR-Anatolia mer. / Aslanli Beli 970 m / (Bhace) 1.6.1991 / lgt. Janata M." (cWR). **Paratypes**: 6 ♂♂, 1 ♀, with same label data as holotype (cSCHM, cWR); 1 ♀ "TR-Anatolia mer. / [striked through text] / 4.6.1992 – 1150 m / S. Kadleg [= Kadlec] lgt." (cWR); 1 ♂ "TR (Adana) ca. 2 km / s. Feke ~ 600 m / 24.V.1998 / Heinz leg."; 1 ♀ "E Turkey, prov. Tunceli / 10 km NW Tunceli / 18.5.07 / lgt. E. Hajdaj" (cHAJ).

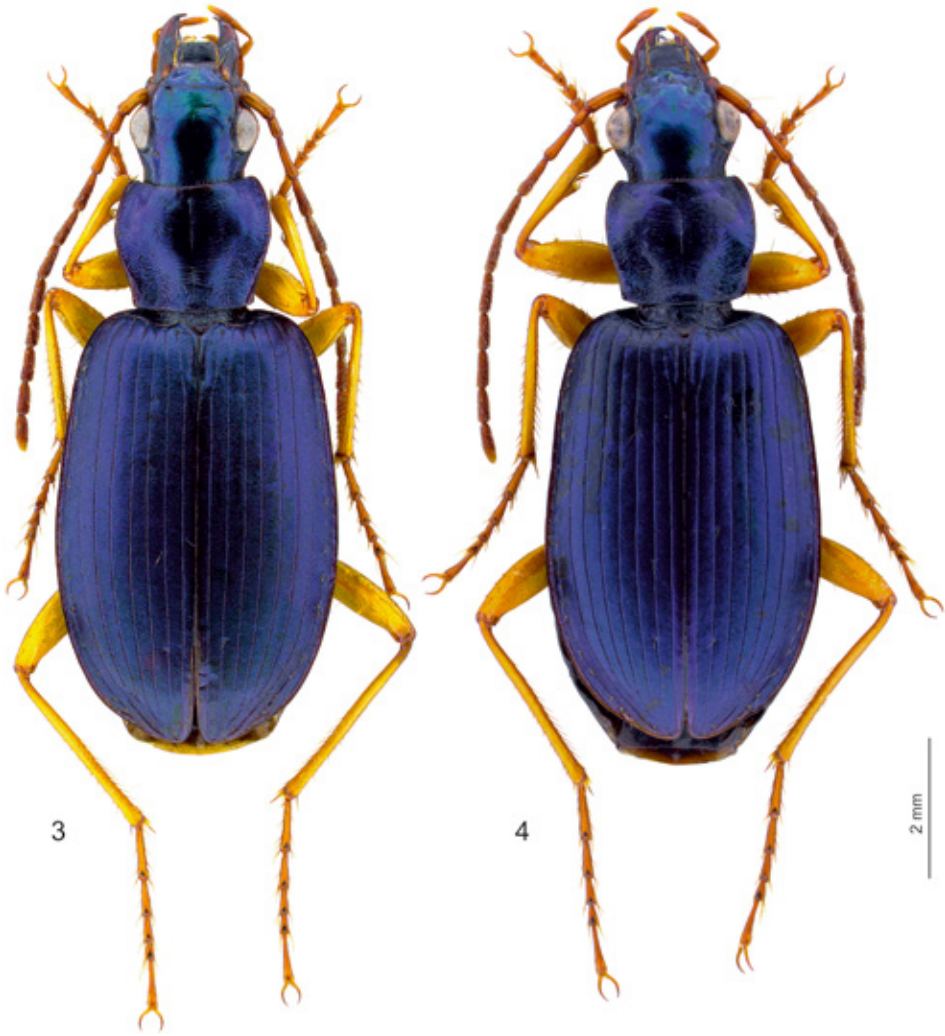
DESCRIPTION: Body length: 8.7–10.3 mm.

Colour: Dorsal surface metallic blue (less brilliant in females); palpi, three basal antennal joints and legs yellowish brown, 4^{th}–11^{th} antennal joints somewhat darker.

Microsculpture: Distinct isodiametric mesh on entire body surface, easily visible under magnification of 20 ×. In both sexes, isodiametric micromeshes in middle of head and in middle of pronotum just as markedly engraved as on sides, near base and near apex of head and pronotum, respectively (Figs. 11, 13–14). In addition to the micromeshes, spacious micropunctation on entire body surface, distinctly visible under magnification of 50 × on head and on lateral areas of pronotum, indistinct on pronotal disc and elytra.

Head: As in *A. dohrnii*, but eyes slightly larger, approximarely same length as third antennomere, temples shorter, slightly less than half as long as eyes (Fig. 11). Scape normal (Fig. 12).

Prothorax: Pronotum with discus moderately convex, in dorsal view moderately transverse, subcordate, broadest somewhat before middle, with basal margin +/- distinctly broader than apical margin (Figs. 13–14); proportions (n = 10): PW/HW 1.08–1.22 (Ø = 1.15), PW/PL 1.16–1.27 (Ø = 1.22), PW/PWB 1.14–1.28 (Ø = 1.22), PWA/PWB 0.86–0.96 (Ø = 0.91). Sides evenly rounded in anterior 3/5 and +/- markedly concave before base. Anterior margin concave, with front angles moderately protruded, +/- tightly rounded. Posterior margin slightly convex or straight in the middle, sinuate towards side margin, with hind angles distinctly shifted anteriad; latter slightly obtuse to rectangular. Median longitudinal impression deep in the middle, shallow or absent near apex (sometimes reaching the anterior margin), disappearing towards base.



Figs. 3–4: Habitus of *Anchomenus bellus* sp.n. from the type locality, 3) paratype female, 4) paratype male.

Anterior transverse impression flat but distinct, posterior transverse impression large and moderately deep, indistinctly bordered. Laterobasal depressions broad and deep, indistinctly bordered. Anterior margin finely beaded laterally or, in some cases, throughout; posterior margin without bead. Marginal gutter narrow in anterior 1/2–2/5, evenly widened towards base. Both lateral and basolateral setae present, with basolateral setae located on margin. Laterobasal depressions, posterior transverse impression and marginal gutter rugose-punctate. Proepisternum smooth.

Pterothorax: As in *A. dohrnii*, but elytra in dorsal view a slightly shorter oval, the intervals only feebly convex, and the third interval in 50 % of the individuals with three setae only; proportions (n = 10): EL/EW 1.42–1.61 (Ø = 1.53), EW/PW 1.75–1.94 (Ø = 1.84).

Abdomen: As in *A. dohrnii*.

Legs: As in *A. dohrnii*, but slightly shorter (compare Figs. 1–2, 3–4).

Male genitalia: Median lobe of aedeagus slender with internal sac comparatively weakly sclerotized as in *A. dohrnii*, however, the internal sac (in quiescent condition) is folded in a different way: a sinusoidal folding structure beside an almost straight folding structure is visible in the middle portion of the median lobe, when viewed from the right side, and no triangular folding structure is present (Figs. 21–22).

RELATIONSHIPS: Due to the remarkable similarity in most external characters of this, the following species, and *A. dohrnii*, the three together form a group of closely related taxa which are all geographical vicariant. Within this group, *A. bellus* sp.n. and *A. dohrnii* seem to be adelphotaxa due to the fact that in both of these species the aedeagal median lobe is slender. Actually, the external shape of the median lobe of these species is very similar (Figs. 19–22), contrasting with the relatively short lobe of *A. alcedo* sp.n. (Figs. 23–24) which presumably represents a plesiomorphic character state (see LIEBHERR 1991).

DIFFERENTIAL DIAGNOSIS: See key to species.

DISTRIBUTION: Mountains of southern and eastern Turkey: Central and Inner Taurus, Nur Dağları; very probably also in the adjacent mountains of northern Syria.

HABITAT: Presumably a mountainous species, as the specimens of the type series were collected between 600 and 1150 m a.s.l. No additional information about collecting circumstances is available. However, as this and the following species are closely related the habitat preferences are probably very similar (see description of the *A. alcedo* sp.n. habitat below).

ETYMOLOGY: The species epithet refers to the beautiful appearance of the new species (bellus: Latin word for beautiful, pretty) (adjectival).

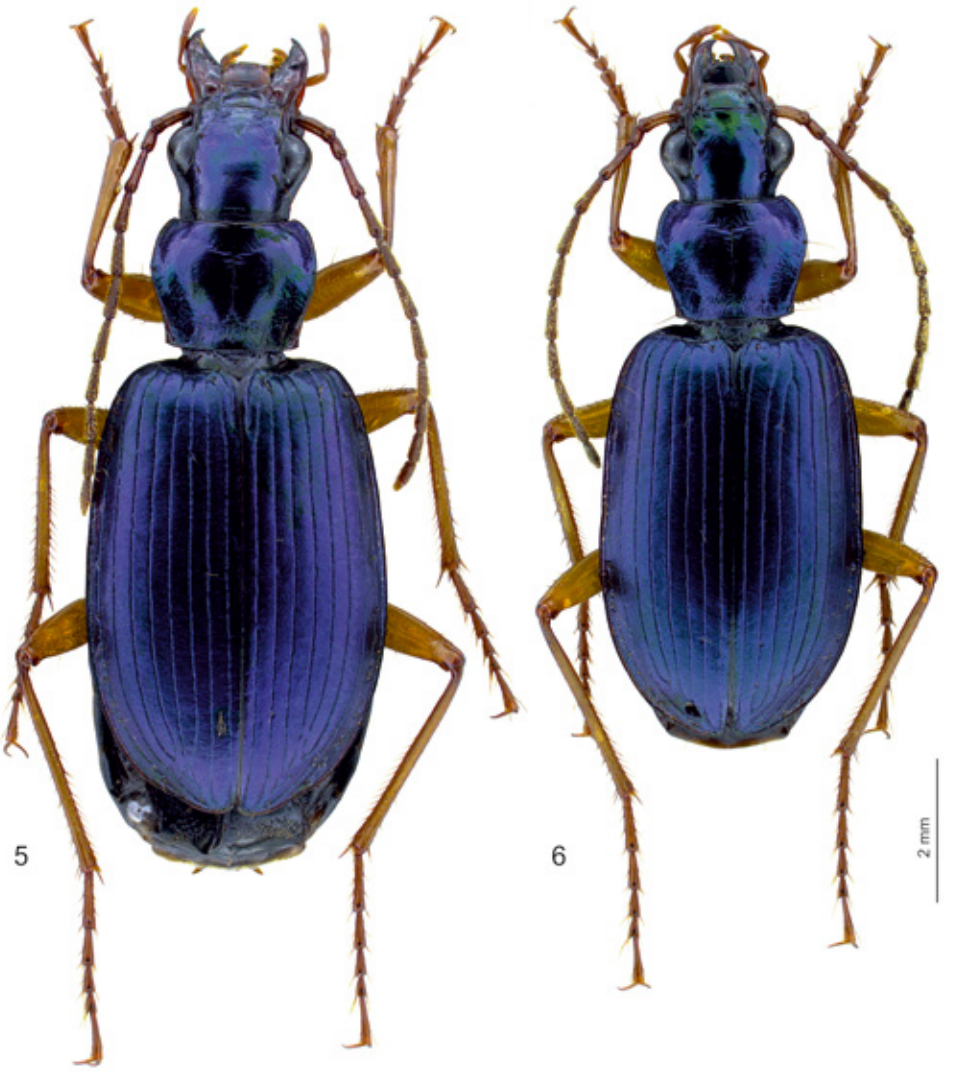
Anchomenus alcedo sp.n.
(Figs. 5–6, 15–18, 23–25)

TYPE MATERIAL: **Holotype** ♂: "N-Israel Golan Heights / Wadi Guyta, Kh- Banyas / stream bank, under", "stones, 16.XII.2010 / leg. Th. Assmann" (TAU). **Paratypes**: 4 ♂♂, 5 ♀♀, with same label data as holotype (cASSM, cSCHM, cWR); 8 ♂♂, 7 ♀♀, ditto but: 1.V.2010 (cASSM, cSCHM, TAU); 2 ♀♀ "ISRAEL, Golan Heights / Horbat Panyas Nahal / Sa'ar, 24.III.2006 / E. ORBACH" (cASSM); 1 ♀ "IL (9), Mt. Hermon / Nakhal Sa'ar, near / waterfall, 376 m / N33°14'40"E35°41'44" / 22.III.2011, leg. Hetzel" (cHTZ); 1 ♀ "Israel, Banyas River zw. / Snir und Ein Quinya, / 390mNN, 33,244°N, / 35,699°O, leg. I. Harry / 23.3.2013" (cHRR); 4 ♂♂, 5 ♀♀ "LEBANON (Jabal Lubnan) / Hagel near Ehmej (W Jbeil) / 500 m (gardens, scrub, / single Pinus halepensis) / 4.VI.1995 Chr. Reuter" (cRTT, cSCHM, cWR); 4 ♂♂ "LEBANON, Rachaya / env. Rachaiya / 14.II.2013 / ~900 m, leg. Reuter" (cRTT, cSCHM, cWR); 1 ♂, 2 ♀♀ "LIBANON, Prov. Nord-Libanon / Zgharta, Stadtgebiet [city area], 80mNN / N 34°23'32", E 35°53'42" / rechter Nebenfluß des [right tributary of] Nah / Abou Ali, Flußufer [river bank] / 28.V.2006, leg. Dirk Frenzel" (cSCHM, NME).

DESCRIPTION: Body length: 9.0–10.4 mm.

Colour: As in *A. bellus* sp.n.

Microsculpture: In both sexes, isodiametric micromeshes in middle of head and in middle of pronotum distinctly less deeply engraved than on sides, near base and near apex of head and pronotum, respectively, and thus, discs of head and pronotum more glossy (Figs. 15, 17–18). Elytra with deeply engraved isodiametric meshes, distinctly visible under magnification of 20 ×. In addition, spacious micropunctation on entire body surface, well visible under magnification of 50 × on head and on lateral areas of pronotum, indistinct on pronotal disc and elytra.



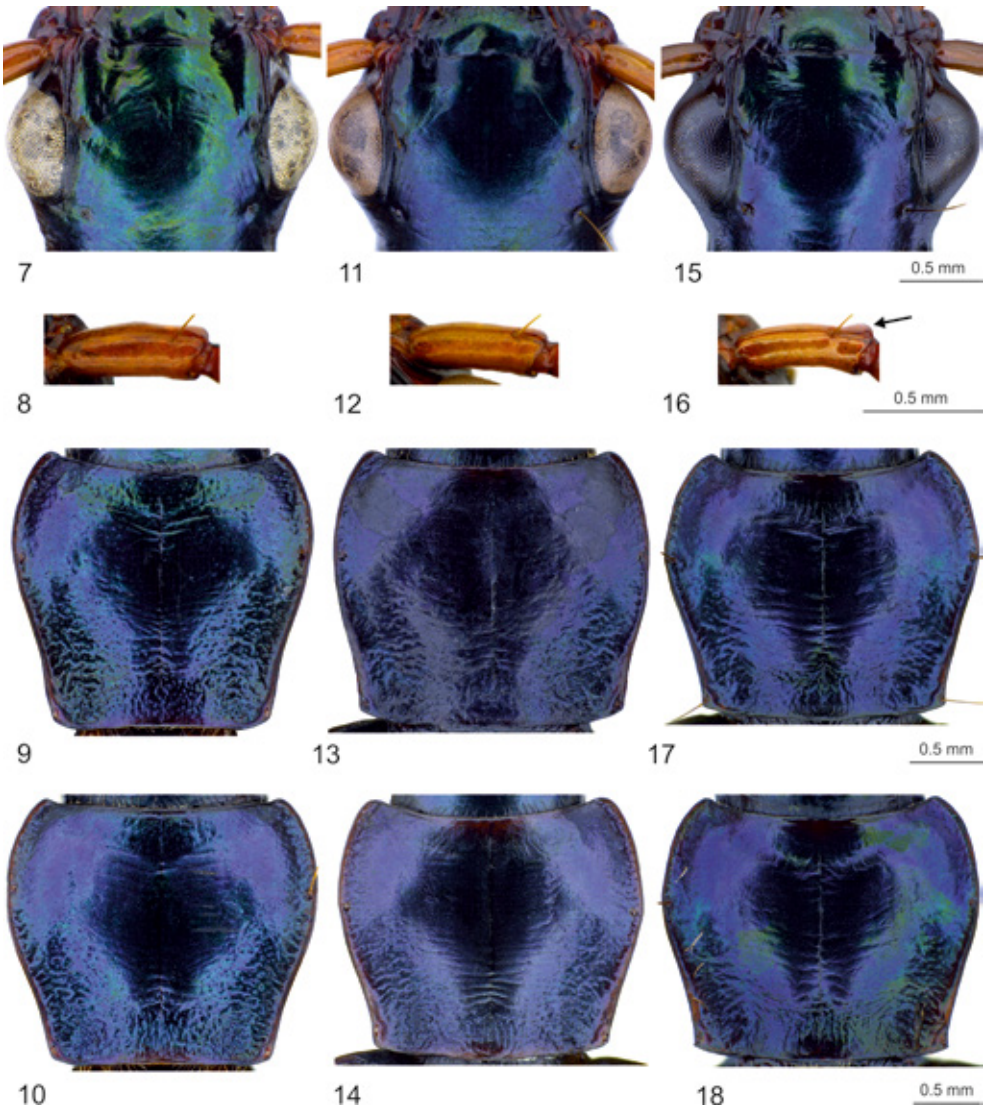
Figs. 5–6: Habitus of *Anchomenus alcedo* sp.n. ("Wadi Guyta"), 5) paratype female, 6) paratype male.

Head: As in *A. bellus* sp.n., but scape with a slight constriction before the apical quarter in addition to a distinct widening of the apex (Fig. 16).

Prothorax: As in *A. bellus* sp.n., but, on average, pronotum more transverse; proportions (n = 10): PW/HW 1.12–1.18 (Ø = 1.15), PW/PL 1.26–1.38 (Ø = 1.31), PW/PWB 1.21–1.29 (Ø = 1.26), PWA/PWB 0.85–0.92 (Ø = 0.89).

Pterothorax: As in *A. bellus* sp.n.; proportions (n = 10): EL/EW 1.47–1.58 (Ø = 1.53), EW/PW 1.72–1.88 (Ø = 1.80).

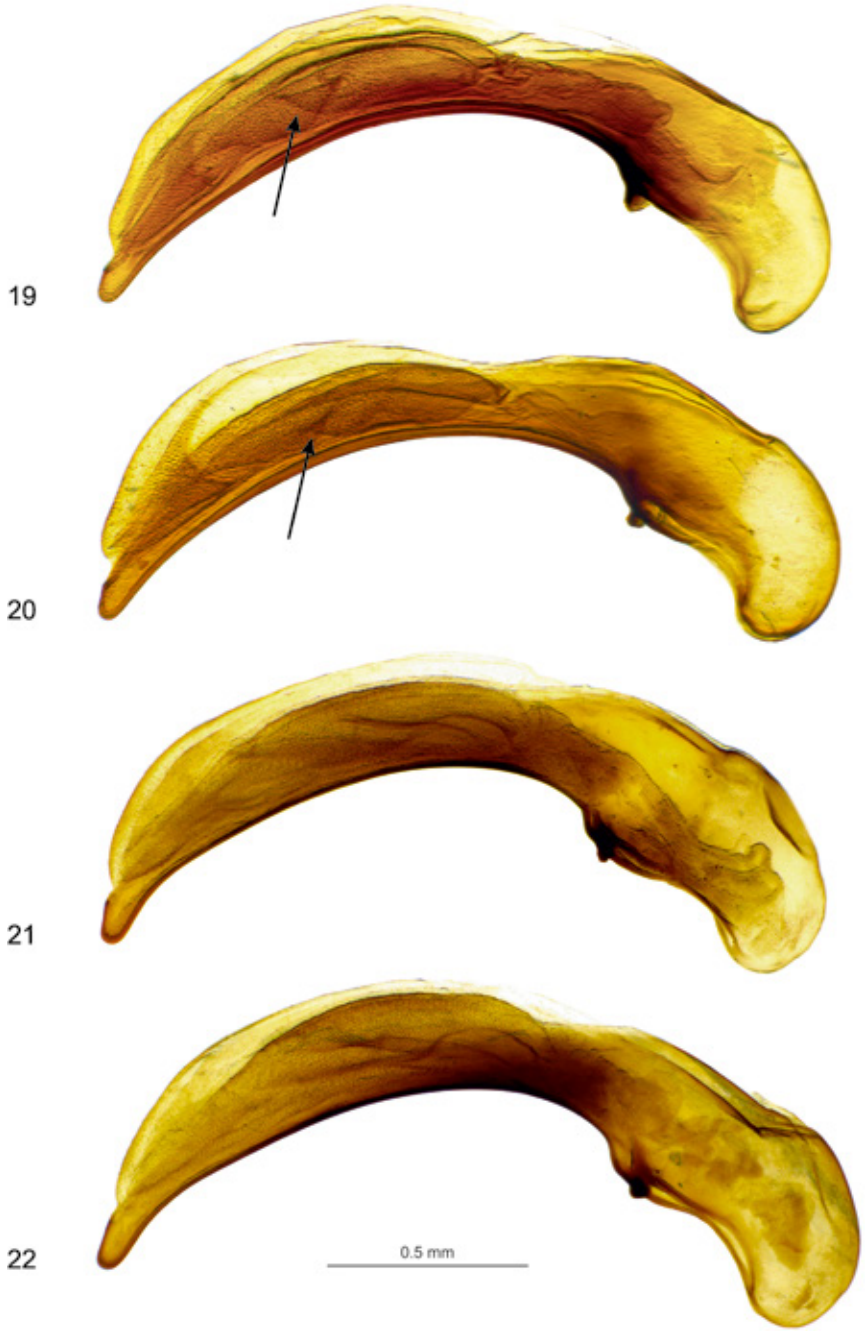
Abdomen and legs: As in *A. bellus* sp.n.



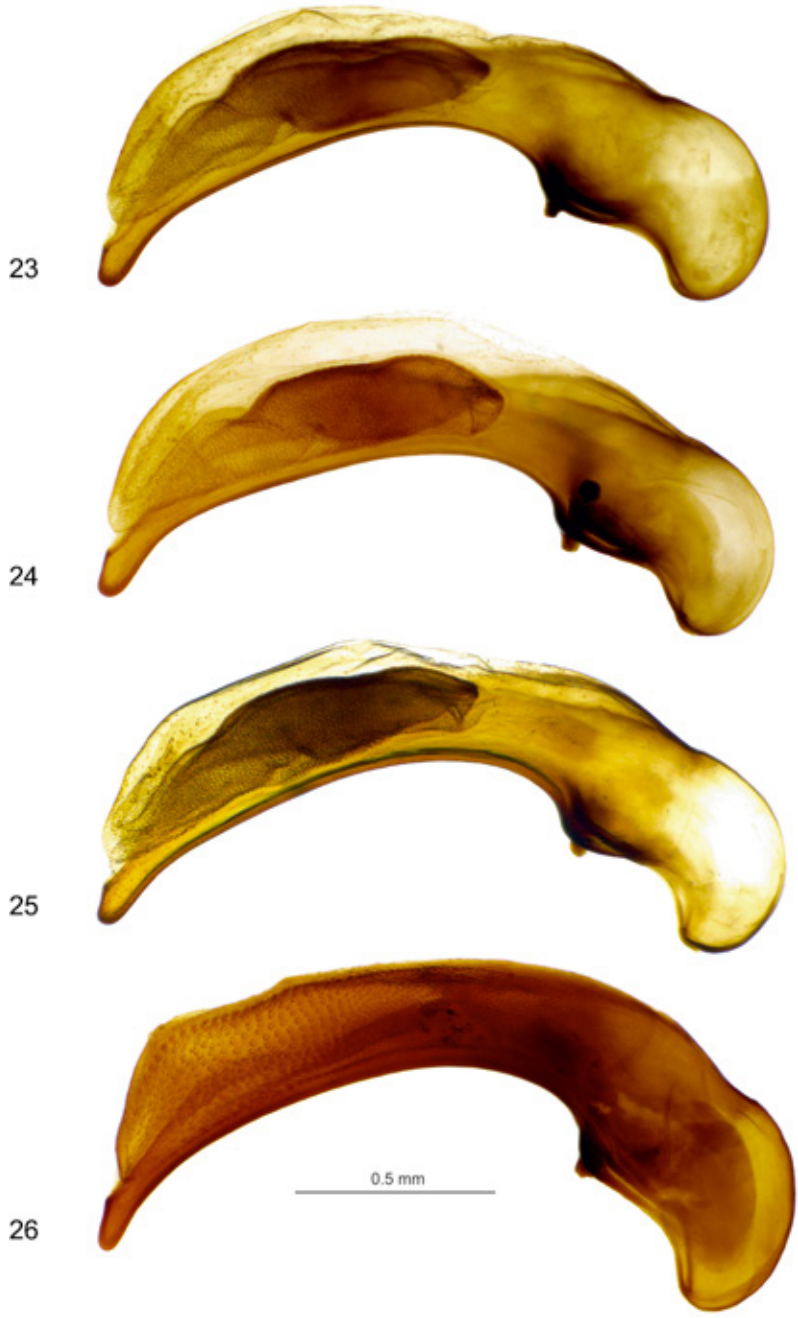
Figs. 7–18: Head, scape, and pronotum of *Anchomenus* spp., 7–10) *A. dohrnii* ("10 km N Bozdagh"), 7–9) male, 10) female; 11–14) *A. bellus* sp.n. (type locality), 11–13) paratype male, 14) paratype female; 15–18) *A. alcedo* sp.n. ("Wadi Guyta"), 15–17) paratype male, 18) paratype female. The arrow in Fig. 16 points to the specific widening of the apex of the scape.

Male genitalia: Median lobe of aedeagus comparatively short with internal sac markedly sclerotized in the basal 2/3 (Figs. 23–25).

RELATIONSHIPS: *Anchomenus alcedo*, *A. bellus* and *A. dohrnii* form a group of closely related species with allopatric distribution. *Anchomenus alcedo* sp.n. seems to represent the sister species of the others due to the fact that the external shape of the aedeagal median lobe is plesiomorphic (see discussion for *A. bellus* sp.n., above).



Figs. 19–22: Aedeagal median lobe of *Anchomenus* spp., 19–20) *A. dohrnii* ("10 km N Bozdagh"); 21–22) *A. bellus* sp.n., 21) holotype, 22) paratype (type locality). The arrows in Figs. 19 and 20 point to the triangular folding structure of the internal sac.



Figs. 23–26: Aedeagal median lobe of *Anchomenus* spp., 23–24) *A. alcedo* sp.n., paratypes ("Wadi Guyta"); 25) *A. alcedo* sp.n. ("Rachaya"); 26) *A. kataevi* sp.n., holotype.

DIFFERENTIAL DIAGNOSIS: See key to species.

DISTRIBUTION: Mountains and foothills of Lebanon and northern Israel.

HABITAT: Along permanent and temporary water-bearing streams (Fig. 28) at an altitude of approximately 80–900 m a.s.l.

ETYMOLOGY: This species is named after the kingfisher (*Alcedo*) due to its similar bright blue metallic colour (noun in apposition).

Anchomenus kataevi sp.n.

(Figs. 26–27)

TYPE MATERIAL: **Holotype** ♂: "Afghan. Ghazni / Kharnay SW Mogur / 21.9.1973 Kabakov" (ZISP).

DESCRIPTION: Body length: 8.3 mm.

Colour: Dorsal surface dark brown, dull, with very slight bluish metallic lustre, pronotal margin, scutellum, base, margin and suture of elytra paler; mandibles, palpi, antennae and legs yellowish brown.

Microsculpture: Distinct isodiametric meshes on entire body surface, distinctly visible under magnification of 20 ×. In addition, spacious micropunctation on entire body surface visible under magnification of 50 ×.

Head: Normal, with moderately stout mandibles, moderately large eyes and moderately broad neck; temples slightly more than ¼ of eye length, moderately wrinkled to the neck. Disc convex. Antennae moderately long with antennomeres relatively robust, scape with one distal seta, pedicel with a ring of apical setae, antennomere III without setae in addition to the ring of apical setae. Mentum with a simple median tooth and with a pair of moderately fine setae located immediately beside the base of tooth. Submentum with two pairs of setae.

Prothorax: Pronotum with discus convex, in dorsal view slightly transverse, subcordate, broadest in middle, with basal margin somewhat broader than apical margin; proportions (holotypus): PW/HW 1.24, PW/PL 1.17, PW/PWB 1.26, PWA/PWB 0.92. Sides evenly rounded in anterior 2/3 and concave before base. Anterior margin concave, with front angles moderately protruded, tightly rounded. Posterior margin feebly convex in the middle, feebly sinuate towards side margin, with hind angles slightly shifted anteriad; latter somewhat obtuse (ca. 130°). Median longitudinal impression markedly deep in the middle, disappearing near apex and base. Anterior and posterior transverse impressions relatively flat but distinct. Laterobasal depressions broad, relatively shallow, indistinctly bordered. Anterior margin very finely beaded throughout; posterior margin only laterally beaded near hind angles. Marginal gutter very narrow in anterior 3/4, indistinctly widened towards base. Both lateral and basolateral setae present, with basolateral setae located on margin. Lateral areas of pronotal surface including laterobasal depressions comprehensively punctate. Proepisternum widely punctate throughout with punctures relatively flat.

Pterothorax: Elytra markedly convex in lateral view, elongate oval in dorsal view, distinctly wider than head; proportions: EL/EW 1.63, EW/PW 1.69. Humerus rounded. Basal groove markedly concave, protruded towards scutellum and humerus as well. Striae deeply impressed and finely punctate overall, intervals markedly convex. Parascutellar setae present and three or four setae present on third interval, each adjoining the third stria; umbilicate series consists of 14–15 setae adjoining eighth stria of which the first five setae are separated within the humeral group; seventh stria with subapical seta and apical seta present. Subapical sinuation of elytra weak but present, apex rounded. Hind wings fully developed. Metepisternum with outer margin distinctly longer than anterior margin, widely punctate throughout with relatively flat punctures.

Fig. 27: Habitus of *Anchomenus kataevi* sp.n., holotype.

Abdomen: Sternum VII with one pair of setae near apical margin (male).

Legs: Profemur with two anteroventral and four or five posteroventral setae. Mesocoxa with a single ridge seta. Mesofemur with 4–5 anteroventral setae. Metacoxa trisetose, with inner seta present. Metafemur with 4–5 anteroventral setae and with 2–3 short subapical setae. Meso- and metatarsomeres I–IV each with markedly incised internal and external sulci, dorsal surface between the lateral sulci carinate; also dorsal surface of meso- and metatarsomeres V slightly but distinctly carinate. Dorsoapical setae present on each side of tarsomeres I–III and V and on inner side of tarsomere IV. Metatarsomere V with three pairs of setae on ventral side.

Male genitalia: Aedeagal median lobe strongly curved in lateral view, smooth on surface, with relatively large basal bulb and with apex moderately long, somewhat rostrate, slightly bent down and moderately pointed. Internal sac, in quiescent condition, not conspicuously folded, but completely covered with large scale-like sclerites (Fig. 26).

RELATIONSHIPS: Although a comprehensive morphological based phylogenetic analysis of *Anchomenus* exists (LIEBHERR 1991, 1994) the phylogenetic position of the new species within this genus seems rather difficult to ascertain. This is, in my opinion, reasoned by the fact that not one of the *Anchomenus* subclades is supported by a character of higher complexity. In contrast, many of the characters which define or support these subclades seem to have been evolved independently several times and have thus a low phylogenetic signal. This becomes also clear in that the subsequent addition of two Palaearctic species to the phylogenetic analysis of the *Anchomenus* clade of LIEBHERR (1991) resulted in significant different branching patterns within the subtree of Palaearctic *Anchomenus* (see LIEBHERR 1994). Consequently, the subgeneric taxonomy presented by later authors (e.g. KRYZHANOVSKIJ et al. 1995, BOUSQUET 2003, LORENZ 2005) does not follow the phylogeny of the genus proposed by LIEBHERR (1991, 1994).

Based on the study of LIEBHERR (1991) the Palaearctic and the Nearctic *Anchomenus* species each form a monophylum. With respect to the Palaearctic members of the genus the monophyly hypothesis is based on the assumption that 1) the presence of at least five (instead of maximum four) posteroventral setae on the profemur and 2) at least six (instead of maximum five) anteroventral setae on the mesofemur represent synapomorphic character states. As *A. kataevi* sp.n. has developed four profemoral posteroventral setae at one side and five at the other side there is little support that the new species is also a member of the Palaearctic *Anchomenus* subclade. However, *A. kataevi* sp.n. has developed only 4–5 mesofemoral anteroventral setae. If the new species actually is a member of the Palaearctic *Anchomenus* subclade the derived character state (additional anteroventral setae on the mesofemur) must have got lost during the evolution of that lineage. The same hypothesis was developed by LIEBHERR (1994) for the species *A. kurnakovi* (KRYZHANOVSKIJ, 1983) which has similar chaetotaxy of pro- and mesofemora.

Beside the leg chaetotaxy there are no additional characters that could be interpreted as synapomorphies and could thus lead to the assumption of sister species relationships of *kataevi* and *kurnakovi*. In contrast, there are at least three character states which could represent synapomorphies of a terminal clade within the Palaearctic *Anchomenus* comprising the Middle Asian *A. turkestanicus* BALLION, 1871 (= *A. punctibasis* REITTER, 1894) and the East Asian species *A. leucopus* BATES, 1873 and *A. yukihikoi* (HABU, 1962) (LIEBHERR 1994) and which these three species share together with *A. kataevi* sp.n.:

1) Elytral striae markedly punctate (not +/- indistinctly punctate as in *A. dorsalis* PONTOPPIDAN, 1763 and *A. quadratus* LECONTE, 1854). This character state has probably evolved only once within the *Anchomenus* clade sensu LIEBHERR (1991).

2) Meso- and metatarsomeres I–IV each with markedly incised internal and external sulci, dorsal surface between the lateral sulci carinate. Within *Anchomenus* this character state is also present in *A. virescens* (MOTSCHULSKY, 1864) and must thus have evolved twice, if the latter is the sister species of *A. dorsalis* (PONTOPPIDAN, 1763) (LIEBHERR 1994). However, based on the results of the previous phylogenetic analysis of LIEBHERR (1991) this character state could have evolved only once, if *A. virescens* is the adelphotaxon of the *kataevi-turkestanicus-leucopus-yukihikoi* subclade.

3) Body surface non-metallic or with very slight metallic reflection. Based on LIEBHERR (1991) markedly metallic pronotum and elytra represent a synapomorphic feature of the genus *Anchomenus*. Accordingly, the non-metallic (or almost non-metallic) body surface of the hypothesized terminal *kataevi-turkestanicus-leucopus-yukihikoi* subclade could represent an atavism.

Within this hypothesized terminal lineage *A. kataevi* sp.n. seems to represent the most basal species as the aedeagal median lobe (Fig. 26) is as robust as in all the other Palaearctic *Anchomenus* species (e.g., *A. dohrnii* and its relatives, see Figs. 19–25). A markedly slender, subparallel shape of the median lobe is a hypothesized synapomorphy of the *turkestanicus-leucopus-yukihikoi* subclade (LIEBHERR 1994).

DIFFERENTIAL DIAGNOSIS: See key to species.

DISTRIBUTION: So far known only from Ghazni Province in eastern Afghanistan.

HABITAT: No information about collecting circumstances of the single specimen is available.

ETYMOLOGY: Proper name in the genitive case. I dedicate this species to my dear friend and colleague Dr. Boris M. Kataev (ZISP).

Anchomenus dorsalis infuscatus CHEVROLAT, 1854, new status

REMARKS: This taxon was described by CHEVROLAT (1854) as a distinct species from "Saida" [= Sidon] in Lebanon but considered an aberration of *A. dorsalis* (PONTOPPIDAN, 1763) and synonymised by GEMMINGER & HAROLD (1868). After examination of comprehensive material of *A. dorsalis* covering the whole range of its distribution and of material from the lowlands of northern Israel close to the type locality of *A. infuscatus* it can be stated that the latter populations are morphologically distinct from all populations of *A. dorsalis* as described in the key below. As a result *A. infuscatus* is considered here as a subspecies of *A. dorsalis*.

Key to species and subspecies of Palaearctic *Anchomenus*

1	Pronotum with laterobasal setae absent	2
–	Pronotum with laterobasal setae present	5
2	Anterior pair of supraorbital setiferous pores and lateral pair of pronotal setiferous pores absent. Body surface completely and densely covered with hairy setae. Distribution: Plains of Middle Asia and south-eastern West Asia	***virescens* (MOTSCHULSKY, 1864)**
–	Both pairs of supraorbital setiferous pores and lateral pair of pronotal setiferous pores present. Body surface glabrous beside normal setation	3
3	Body unicoloured metallic blue, cyan blue or green, legs and antennae dark brown to blackish. Distribution: Western Alps, northern Apennines and Pyrenees	***cyaneus* DEJEAN, 1828**
–	Head and pronotum metallic green or cyan blue, elytra non-metallic yellowish or reddish brown at least at basal quarter	4

4 Posterior three quarter to two fifth of the elytral disc dark brown, sometimes greenish metallic, markedly contrasting with the yellowish or reddish brown elytral base and side margin. Distribution: Almost Trans-Palaearctic; from north-western Africa north to southern Scandinavia east to northern Central Asia and central Siberia [100 years old specimens exist also from the Russian Far East (LAFER 1992), however, it was never found again there and, occurrence in this region is unlikely (see also SUNDUKOV 2013)]……. ..... ***dorsalis dorsalis* (PONTOPPIDAN, 1763)**

– Elytra brown, disc not or indistinctly darkened. Distribution: Lebanon and Israel…… ..... ***dorsalis infuscatus* CHEVROLAT, 1854**

5 Species from the Caucasus and the Middle East with dorsal body surface greenish or bluish metallic 6

– Species from Middle East, West, and East Asia with dorsal body surface brownish or blackish, not metallic 9

6 Primarily wingless species with elytra short oval and metepisternum shortened; the latter with outer margin approximately as long as anterior margin. Body entirely brilliant metallic cyan blue or green. Distribution: Caucasus, NE Anatolia..... ***kurnakovi* (KRYZHANOVSKIJ, 1983)**

– Potentially fully winged species with elytra long oval and metepisternum slender; the latter with outer margin distinctly longer than anterior margin. Surface of body metallic blue, at least on head and pronotum. Distribution: W and S Anatolia, Middle East 7

7 Scape somewhat trumpet-shaped, with a slight constriction before the apical quarter in addition to a distinct widening of the apex (Fig. 16). Median lobe of aedeagus comparatively short with internal sac markedly sclerotized in the basal 2/3 (Figs. 23–25). Distribution: Northern Israel, Lebanon ..... ***alcedo* sp.n.**

– Scape normal (Figs. 8, 12). Median lobe of aedeagus comparatively slender with internal sac weakly sclerotized throughout (Figs. 19–22). Distribution: Turkey, north-western Syria 8

8 Isodiametric micromeshes in middle of head and in middle of pronotum distinctly less deeply engraved than on sides, near base and near apex of head and pronotum, respectively (Figs. 7, 9–10). Middle portion of the endophallus with a small triangular folding structure, if viewed from the right side (Figs. 19–20). Distribution: Western Turkey ..... ***dohrnii* FAIRMAIRE, 1866**

– Isodiametric micromeshes in middle of head and in middle of pronotum just as markedly engraved as on sides, near base and near apex of head and pronotum, respectively (Figs. 11, 13–14). Endophallus without a triangular folding structure (Figs. 21–22). Distribution: Southern and eastern central Turkey, probably also in north-western Syria ..... ***bellus* sp.n.**

9 Species from East Asia with slender pronotum (PW/HW distinctly less than 1.2) 10

– Species from Middle and West Asia with pronotum more transverse (PW/HW above 1.2)..... 11

10 Pronotum evidently punctate throughout. Body length above 7.5 mm. Distribution: Sino-Pacific; from Japan, eastern China and Taiwan south to Vietnam ..... ***leucopus* BATES, 1873**

– Pronotum more faintly punctate; occurrence of punctures usually restricted to the laterobasal depressions and posterior transverse impression. Body length less than 7 mm. Distribution: Japan (Kyushu) ..... ***yukihikoi* (HABU, 1962)**

11 Discs of head and pronotum distinctly more glossy due to much less deeply engraved meshes of microsculpture, the latter not visible under magnification of less than 50 ×. Elytral discal setiferous pores located within the third interval (usually in the middle between the second and third stria). Aedeagal median lobe markedly narrow, with internal sac very faintly sclerotized. Distribution: South-eastern West Asia and Middle Asia……..…… ..... ***turkestanicus* BALLION, 1871**

– Discs of head and pronotum dull due to deeply engraved isodiametric meshes, the latter well visible under magnification of 20 ×. Elytral discal setiferous pores adjoining the third striae. Aedeagal median lobe much more robust, with internal sac markedly sclerotized (Fig. 26). Distribution: East Afghanistan ..... ***kataevi* sp.n.**

Fig. 28: Habitat of *Anchomenus alcedo* sp.n. in the Golan Heights (locus typicus) in May: sun-exposed temporary stream with relics of riparian wood- and scrubland. This stream carries running water particularly during the rainy season in winter but residual pools may be found until spring. The specimens of *A. alcedo* sp.n. were collected under the stones near the edge of the water.

Acknowledgements

I thank all operating curators and private collectors listed in the chapter 'Materials and methods' for providing specimens for the study presented in this paper. I am very grateful to Thorsten Assmann (Bleckede) for the information about the collecting circumstances of *Anchomenus* in Israel and for the habitat photograph (Fig. 28). I appreciate very much the support of James K. Liebherr (Ithaca) for critically reading a previous draft of the manuscript on which this paper is based.

References

BOUSQUET, Y. 2003: Tribe Platynini Bonelli, 1810, pp. 449–469. – In Löbl, I. & Smetana, A. (eds.): Catalogue of Palaearctic Coleoptera. Volume 1. Archostemata-Myxophaga-Adephaga. – Stenstrup: Apollo Books.

CASALE, A. & VIGNA TAGLIANTI, A. 1999: Caraboid beetles (ex. Cicindelidae) of Anatolia, and their biogeographical significance (Coleoptera, Caraboidea). – Biogeographia 20: 277–406.

CHEVROLAT, M.A. 1854: Coléoptères de Syrie. – Revue et Magasin de Zoologie 2 (6): 389–396.

CSIKI, E. 1931: Carabidae, Harpalinae IV. 24. Subtrib. Agoni, pp. 739–1022. – In Junk, W. & Schenkling, A. (eds.): Coleopterorum Catalogus. Pars 115. – Berlin: W. Junk.

FAIRMAIRE, L. 1866: Notice sur les Coléoptères récoltés par M.J. Lédérer sur le Bosz-Dagh (Asie mineure). – Annales de la Société entomologique de France 4 (6): 249–280.

GEMMINGER, [M.] & HAROLD, [E.] de 1868: Catalogus Coleopterorum hucusque descriptorum synonymicus et systematicus, Vol. I. – Paris: E. Deyrolle fils., 424 pp. (+ unnumbered generic index).

KRYZHANOVSKIJ, O.L., BELOUSOV, I.A., KABAK, I.I., KATAEV, B.M., MAKAROV, K.V. & SHILENKOV, V.G. 1995: A checklist of the ground-beetles of Russia and adjacent lands (Insecta, Coleoptera, Carabidae). – Sofia: Pensoft, 271 pp.

LAFER, G.S. 1992: [Fam. Carabidae – Ground Beetles]. – In Ler, P.A. (eds.): [Field guide to the insects of the Far East of the USSR. III. Beetles. Part 2]. – St. Petersburg: Nauka, 602–621. [in Russian]

LIEBHERR, J.K. 1991: Phylogeny and Revision of the *Anchomenus* Clade: The genera *Tetraleucus, Anchomenus, Sericoda*, and *Elliptoleus* (Coleoptera: Carabidae: Platynini). – Bulletin of the American Museum of Natural History 202: 1–163.

LIEBHERR, J.K. 1994: Recognition of the West Asian *Anchomenus kurnakovi* and *A. punctibasis* (Coleoptera: Carabidae: Platynini) and Miocene evolution of the Mediterranean and Paratethys Seas. – Journal of the New York Entomological Society 102 (2): 127–141.

LORENZ, W. 2005: Systematic list of extant ground beetles of the world (Insecta Coleoptera "Geadephaga": Trachypachidae and Carabidae incl. Paussinae, Cicindelinae, Rhysodinae). Second edition. – Tutzing: Lorenz, 530 pp.

SAHLBERG, J. 1913: Coleoptera mediterranea orientalia, quae in Aegypto, Palaestina, Syria, Caramania atque in Anatolia occidentali anno 1904 collegerunt John Sahlberg et Unio Saalas. – Öfversigt af Finska Vetenskaps-Societetens Förhandlingar 55, Ser. A (19): 1–281.

SUNDUKOV, Y.N. 2013: [An annotated catalogue of the ground beetles (Coleoptera: Caraboidea) of Sikhote-Alin]. – Vladivostok: Dalnauka, 271 pp. [in Russian]

Dr. Joachim SCHMIDT
University of Rostock, Institute of Biosciences, General and Systematic Zoology, Universitätsplatz 2, D – 18055 Rostock and *Lindenstraße 3a, D – 18211 Admannshagen, Germany* (schmidt@agonum.de)

Koleopterologische Rundschau	84	30	Wien, September 2014

Buchbesprechung

FOSTER, G.N., BILTON, D.T. & FRIDAY, L. 2014: Keys to adults of the water beetles of Britain and Ireland (Part 2) (Coleoptera: Polyphaga: Hydrophiloidea – both aquatic and terrestrial species). – in Wilson, M. (ed.): Handbooks for the Identification of British Insects. – St. Albans: Royal Entomological Society, vi + 126 pp.
Softcover; Format: 17.5 × 24.5 cm.

Mit dem hier zu besprechenden, neuen Band liegt nun auch der zweite Teil dieser Serie vor, die als revidierte Neuauflage des vielzitierten Werkes „A key to the adults of British Water Beetles" (FRIDAY 1988: Field Studies 7, 151 pp.) zu betrachten ist.

Wie schon im ersten Band besticht auch dieses Buch durch hervorragende Illustrationen der relevanten Unterscheidungsmerkmale (viele plastisch wirkende Halbton-Graphiken) sowie durch erstklassige Habitus-Fotos (pp. 115–126), wobei die Abbildung von *Laccobius simulatrix* etwas aus der Reihe tanzt, da sich die Autoren dafür entschieden haben, das einzige aus Großbritannien bekannte Exemplar (1982 in einem Schwimmbecken gesammelt) abzubilden. Dem Tier fehlen leider einige Gliedmaßen. Das in Fig. 256 abgebildete Tier ist nicht *Cercyon impressus* (Garth Foster, pers. Mitt.).

Spercheus emarginatus wurde seit 1956 nicht mehr gefunden und ist möglicherweise die einzige Art der behandelten Familien, welche in Großbritannien als ausgestorben gelten kann.

Auf den Seiten 113–118 findet sich ein revidierter Schlüssel zu allen britischen Wasserkäfer-Familien.

Generell würde ich das Buch als sehr empfehlenswert einstufen. Zu bedauern ist allerdings das gänzliche Fehlen von Verbreitungskarten. Völlig unverständlich ist die hartnäckige Verwendung der Begriffe Meso- und Metasternum. Bei adulten Käfern gibt es kein äußerlich sichtbares Meso- bzw. Metasternum. Diese Begriffe sind durch Mesoventrit und Metaventrit zu ersetzen.

Mit einigem Erstaunen musste ich auch den folgenden Text in der Einleitung (p. 1) zur Kenntnis nehmen: "Despite general agreement that the Hydrophiloidea and Hydraenidae evolved independently it is surprisingly difficult to find accessible characters to distinguish the hydraenid *Limnebius* from Hydrophilidae and the other hydraenid genera (…) from Hydrochidae. Their scientific separation is based on an array of rather obscure features such as are provided by the hind wings and the larvae, backed up by genetic data". Abgesehen davon, dass die in dieser Serie völlig ignorierten Larven als "rather obscure features" bezeichnet werden, unterscheiden sich die Imagines aller britischen Hydraenidae und Hydrophiloidea auf Anhieb durch die im vorliegenden Buch vielfach abgebildeten Fühlerkeulen, welche bei den Hydrophiloidea aus drei, bei den Hydraenidae hingegen stets aus fünf Antennomeren bestehen.

Der dritte (und letzte) Band der Serie darf mit Spannung erwartet werden.

M.A. JÄCH